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TECHNOLOGY

TROUBLE SHOOTING

GUIDE

FOR SMALL & HOME OFFICES



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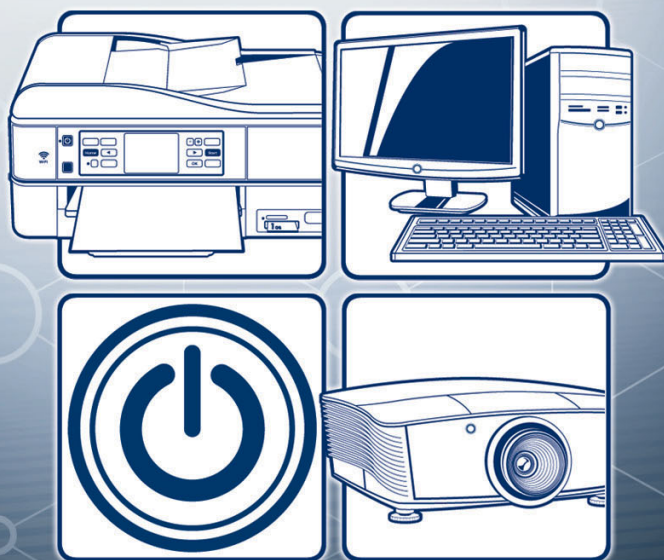


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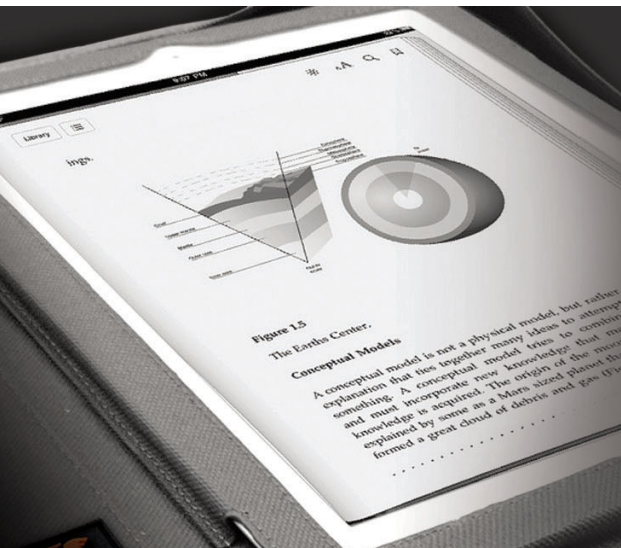
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Tablet Innovation For The Shoestring Budget

Thanks to the success of Apple's iPad and other models, the tablet market is now teeming with options from various manufacturers. This competition is driving down prices and boosting innovation, as evidenced by two upcoming models recently unveiled by Archos.

The Archos 80 G9 (\$279; www.archos.com) and 101 G9 (\$349) feature Android 3.1 (also known as "Honeycomb") and pack plenty of processing power with a Texas Instruments OMAP4 1.5GHz dual-core processor. This high performance is designed to help the tablets take advantage of Honeycomb's inherent multitasking, including smooth switching between open apps with the flick of a finger, even with many open Web pages or Flash videos. Both models include Wi-Fi, and customers who also want 3G connectivity can purchase a \$49 USB 3G stick. Further, instead of a 3G subscription plan, users can enjoy a pay-as-you-go plan that charges for data use only when it's needed.

Archos has adopted a unique storage-centric philosophy for its G9 tablets. According to the company, manufacturers pay the same price for 32GB of flash memory and 250GB of hard drive storage, so it makes more sense to provide that larger drive-based capacity instead of simply offering a little more flash capacity. Because this Seagate Momentus Thin



New G9 tablets from Archos deliver the multitasking glory of Android 3.1 along with 250GB of hard drive storage that provides plenty of room for high-definition multimedia content.

hard drive is a mere 3 millimeters thicker than a flash unit, the big capacity doesn't add to the overall size of the tablets.

This increased capacity means that users will be able to store more high-definition content on the G9 tablets. To handle that content, Archos includes the capability to decode Full HD videos and provides support for a big selection of codecs, formats, and subtitle styles. The tablets also include UPnP (Universal Plug and Play) and Samba protocols to enable

streaming from a computer directly to the tablets.

The 80 G9 includes an 8-inch screen with a resolution of 1,024 x 768, while the 101 G9 has a 10.1-inch screen and a resolution of 1,280 x 800. Both models include an HDMI (High-Definition Multimedia Interface) output, built-in GPS (global positioning system), a 720p front-facing camera, and a lithium polymer battery that provides up to seven hours of video playback time and up to 10 hours of Internet navigation time. The tablets are slated to hit store shelves in September. ■

STORAGE

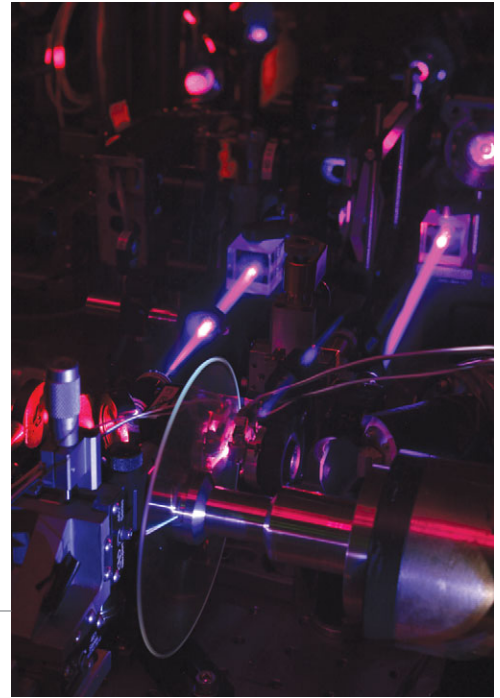
GE Brings Holographics To Storage

Imagine squeezing the content from 20 Blu-ray Discs or 100 DVDs onto a single disc. That might sound like science fiction, but it's now a step closer to reality, thanks to a technological breakthrough from GE's Holographic Data Storage project.

Through the use of innovative optical technology, holographic data storage trumps traditional magnetic and optical data storage methods by recording information at far greater speeds. GE Global Research (ge.gegloalresearch.com) has developed material that's 100 times more sensitive than previous materials, and this higher sensitivity leads to faster recording speeds. In fact, this micro-holographic threshold material can support recording that's as fast as Blu-ray Discs.

Although previous (non-GE) efforts in holographic storage have failed to break through to the mainstream, GE's work appears destined for market success due to speeds that match current high-capacity storage mediums. According to GE, this holographic method also provides data access and transfer rates that are higher than current optical storage formats. ■

With its ability to store the equivalent of 20 Blu-ray Discs on a single disc, GE's innovative holographic data storage looks poised to make major noise in the future storage market.



PRINTERS & PERIPHERALS

Microsoft Releases Slim, Slide-tastic Mouse

For years, the overwhelming trend among mouse manufacturers was size—and lots of it. Some of the most well-regarded mice from recent history were downright massive, but some of today's vendors are going in the opposite direction with sleeker, smaller models.

One of these is Microsoft's new Explorer Touch Mouse (\$49.95; www.microsoft.com), which features a shiny black or grey exterior over a low-profile body. Instead of a mouse wheel, the Explorer Touch Mouse has a touch strip that lets users flick up, down, or even side to side in order to navigate on-screen content. This innovative strip also can be configured to provide various scrolling speeds—for example, slow speed for precise scrolling, medium speed for scrolling through a page or two, or fast speed to navigate long documents.

The Explorer Touch Mouse uses BlueTrack technology, which combines optical and laser technologies to deliver tracking precision on most surfaces. This mouse also features a battery life of more than 18 months, customizable buttons, and a plug-and-go nano transceiver that is small enough to stay plugged in or be stored in the mouse. ■



Microsoft's new Explorer Touch Mouse eschews a traditional mouse wheel for a touch strip that lets users flick up, down, or side to side and choose one of several scrolling speeds.

CBT Nuggets: Not Your Average Training

Delving into the world of e-learning can be a daunting experience to the uninitiated. Trying to stay tuned to online classes and other materials can be tough when distractions abound in a home or office setting, but CBT Nuggets has developed a method designed to cut through those challenges.

CBT Nuggets (www.cbtnuggets.com) takes the natural, interesting rhythm of a live classroom presentation and delivers it online in what the company calls “nuggets,” or pieces of a training series that can be easily absorbed by students. Using instructors thoroughly versed in the classroom

material and who don't rely on scripted material, CBT Nuggets aims to create presentations that are memorable and effectively hold students' attention.

Thousands of IT training videos are available for purchase on an individual basis or are available through a Nugget Streaming Subscription that provides 24/7 access to the company's entire video library. CBT Nuggets will also bundle several video series around a certain technical certification at a discount. For example, its Microsoft MCSE: Security 2003 Certification package contains 93 hours of training through 172 videos at a cost of \$1,099. **I**

Bundled certification packages offered by CBT Nuggets let customers choose a certification category or a specific certification to obtain a group of training videos at a discount.

FEATURE PACKAGE TOPICS

Each *Smart Computing* issue includes tips, reviews, and information about a variety of topics. Plus, each issue also has a featured group of articles about a selected topic. Below is a list of the Feature Packages from the previous year. As a *Smart Computing* subscriber, you have access to all of our archived articles at www.smartcomputing.com.

September	2010	First Aid For Your Gadgets
October	2010	Do More With Your Network
November	2010	41 Windows Tips & Tricks
December	2010	Search Engine Optimization

January	2011	Solve Printer Problems
February	2011	Social Networking & Your Business
March	2011	Backup For Home & Office
April	2011	Solve Software Errors

May	2011	Update Your Web Site
June	2011	Small & Home Office Security
July	2011	PC Maintenance
August	2011	Mobile Computing

Athena Power presents a small business solution

The **RM-1U122ITX** mini server



Athena Power has released its new 1U rackmount –Built for the small and compact ITX form factor the elegantly designed rackmount is used for small businesses to build mini-servers. Adding to its arsenal of key features, Athena Computer Power has added their 2 HDD HOT-Swappable backplane the BP-SATA2221b.



Backplane

This backplane unit allows users to swap 2 x 2.5" hard drives at their own leisure. Allowing up to a 6.0 Gbps transfer rate it removes the hassle of slow transfer and processing speeds. Its tray-less housing will support up to SATA III and SSD hard drives. With the integrated HOT-SWAP feature all server builders; whether amateur or professional will find it easier to swap or replace hard drives for their 1U server needs.



Versatile

Athena Power's 1U ITX rackmount also characterizes versatility; this rackmount is designed to be able to support different types of functions and is able to be modified according to the server builder's needs. It will always be able to support 1 x 2.5" HDD alongside with whatever hard drive you wish to use inside the backplane as your HOT-Swappable device.



POWER

The RM-1U122ITX also may include one of Athena Power's FlexATX series power supplies. Their FlexATX series fits perfectly with the rackmount's sleek ITX design and is either certified 80 PLUS or was awarded the 80 PLUS Bronze badge for higher efficiency. The wattage range for the Athena Power's FLEX series is 220-350 Watts, enough power to maintain any mini server or slim workstation system.

No other 1U rackmount is as compact and versatile as Athena Power's 1U122ITX; its new features and easy-to-customize design, there is no other rackmount like this in the market today. Athena Power, with its new rackmount has made server building easier providing another small business solution.

WWW.ATHENAPOWER.US

Small Business Resources

The Web has a trove of resources for SOHOs (small and home offices) and small businesses—if you know where to look. Find an association that can help you meet your goals; get information from the government about loans, grants, and taxes; and stay up-to-date with the best small business newsletters and blogs. If you have a pressing question, pose it on a forum to see what your peers have to say.



ASSOCIATIONS & SUPPORT

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Main Street Alliance (MSA)

mainstreetalliance.org
info@mainstreetalliance.org
(603) 831-1835
3518 S. Edmunds St.
Seattle, WA 98118

National Federation of Independent Businesses (NFIB)

www.nfib.com
(800) 634-2669
(615) 872-5800
53 Century Blvd.
STE 250
Nashville, TN 37214

National Small Business Association (NSBA)

nsba.biz
(202) 293-8830
1156 15th St., STE 1100
Washington, DC 20005

SCORE

www.score.org
(800) 634-0245
(703) 487-3612
1175 Herndon Pkwy
STE 900
Herndon, VA 20170

Small Business Development Centers Network (SBDNET)

www.sbdnet.org
(800) 689-1912
501 W. Durango Blvd.
San Antonio, TX 78207



BLOGS

Signal vs. Noise

37signals.com/svn/posts

Small Business Search Marketing

www.smallbusinesssem.com

Small Biz Bee

smallbizbee.com

Small Business Trends

smallbiztrends.com

The Small Business Blog

www.sme-blog.com

The Entrepreneurial Mind

www.drjeffcornwall.com



FORUMS

Small Business Administration Community

www.sba.gov/community

The Small Business Community Forums

www.smallbusinessforums.org

Small Business Ideas Forum

www.smallbusinessbrief.com/forum

The Young Entrepreneur

www.youngentrepreneur.com/forum

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Forums
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GOVERNMENT

Grants.gov

House Committee On Small Business

smallbusiness.house.gov

Small Business and Self-Employed Tax Center

www.irs.gov/businesses/small

Small Business Administration (SBA)

sba.gov

U.S. Copyright Office

copyright.gov

U.S. Department of Labor

dol.gov

U.S. Senate Committee on Small Business & Entrepreneurship

sbc.senate.gov

SMALL BUSINESS Development Centers

Assistance For Entrepreneurs



Haven't the foggiest idea how to harness your entrepreneurial spirit, pull yourself anywhere using bootstraps, or think in or out of a box? Starting and running your own business is tough, but fortunately for prospective and current small business owners, SBDCs (Small Business Development Centers; asbdc-us.org) dispense with the cliché and offer training, counseling, and other assistance to help you craft your vision into a real-world success.

Run A Small Business

Pooling resources from federal, state, and local governments, as well as the private sector and the educational community, The Association of Small Business Development Centers is truly a joint venture with a vested interest in fostering small business growth. For an overview of what the SBDC can offer you and your small business, visit bit.ly/dKYe2a. The SBA (Small Business Administration; www.sba.gov) is partnered with SBDCs.

Help On Your Turf

You may be surprised to learn that there's probably an SBDC branch nearby; there are locations in all 50 states, in the District of Columbia, Puerto Rico, and even in the U.S. territories. There are 63 nationwide Lead Small Business Development Centers coordinating program services for every sub-center and satellite location in each state. Centers are made up of directors, full-time

staff members, and various part-time staff and volunteers.

The best way to contact your nearest SBDC is to visit the Association of Small Business Development Centers' Web site (asbdc-us.org), input your ZIP code into the Find Your Nearest Small Business Development Center text box, and then click Go. The results page will highlight Lead Centers but rank centers in order of those closest to your location. Often, SBDCs partner with universities and colleges, and

can expect from your nearest SBDC include help with financial, marketing, production, organization, engineering, and technical problems and access to feasibility studies that can flesh out a fledgling business plan. Some SBDCs also offer affordable training seminars to help with various aspects of running a business. You can also rest assured that your business with the SBDC will remain confidential.

Women's Business Centers

The SBA offers WBCs (Women's Business Centers), which directly serve female entrepreneurs through nearly 100 educational centers nationwide. This organization strives to assist women in overcoming the hurdles they face in today's business environment by offering business management training and technical assistance to all women, with a special emphasis on economically or socially disadvantaged women. The services and training programs are also commonly offered in multiple languages to enable those who speak English as a second language or are still learning English. To find your nearest WBC, visit bit.ly/hs3st2.

Small Business, Big Payoff

Small business owners know that achieving success is about taking risks, innovating, and making tough decisions day in and day out. Thanks to the services offered at the SBA, SBDCs, and WBCs, you're not on your own. ■

Frequent Question

If you're like many other people starting a small business, funding is at the top of your mind. A common question that entrepreneurs have for SBDCs is: "Am I eligible for grant money?"

The answer depends on the nature of your business. [Grants.gov](http://www.grants.gov) (www.grants.gov) will give you a clear picture of your options before your visit to a Small Business Development Center.

tend to be found on campuses across the country. On the search results page, you'll also find a link to the local office's Web page, email address, phone number, a fax number if available, and address.

The Closest Thing To A Free Lunch

The services offered may vary by location, but all SBDCs offer many services free of charge. Some typical services you

Roundup: Video-Editing Software

Find The Right Tool To Grow Your Brand

You already know that people turn to the Internet when they want to find out about your business. And depending on the nature of your product or service, chances are good that an online video can impart the message you want to convey.

That might mean posting a short demo of your latest product, for example. Another idea is to create simple tutorials that show potential customers how to do something, and you just happen to portray your product as the means.

Regardless of the direction you'd like your videos to take, you'll need editing software to put them together. A video-editing application lets you capture video clips from your camera or phone, rearrange and trim them, and put transitions such as fades between them. You'll be able to add music and/or narration, your own text titles, and even special effects. And finally, you can save your video as a file, post it online, or burn it to DVD or BD (Blu-ray Disc) with or without navigation menus.

Some editing applications are aimed at consumers, others at professionals or "prosumers," but each offers a great deal of power for small business and home office users. Read on as we explore a handful of popular titles.

Common Features

The editing apps in this article have the following commonalities, more or less. Note that some editors come in more inexpensive editions that may forgo some of these features. (If you need a specific capability that's fairly recent, such as support for 3D and/or the integrated graphics



Corel VideoStudio Pro X4

features in AMD Fusion and second-generation Intel Core processors, make sure that an editing app has it before you buy.)

- HD support
- Proxy editing to help less powerful systems handle HD video
- Hardware acceleration with recent GPUs and new CPUs
- Surround sound
- 3D
- Titling
- Photo slideshows with transitions, effects, and music
- BD and DVD burning
- Export to file formats for mobile devices and popular sites
- Simplified uploading to YouTube, Facebook, and/or others

Corel VideoStudio Pro X4

From the perspective of longtime users of video-editing software, a most welcome feature of Corel's latest version of VSP is its resizable, click-and-draggable panels for its preview, library, and timeline functions. VideoStudio Pro X4

(www.corel.com) also supports dual-monitor setups, as many serious users prefer to throw one of these panels onto a second screen.

We installed VSP along with a service pack, a content pack, and a bonus pack, all at no extra charge. Our download version also came with the NewBlueFX Light Rays special effects package with picture-in-picture animation. (The boxed edition is bundled with free passive 3D glasses.)

"We've spent a lot of time accelerating the software so the user experience is more fluid," says Corel senior product manager Jan Piros. "One of the big comments from users is the speed at which they can produce video."

One reason for the speedup is VSP's H.264 video compression support when you're creating an MP4 file. The software is also optimized for the graphics capabilities built into second-generation Intel Core chips and AMD Fusion processors. There's 2D to 3D video conversion, as well as upscaling of standard-definition footage to HD. VideoStudio also uploads

BUYING TIP

To most users, ease of use in a video-editing app may be more important than bells and whistles. Likewise, if you need to do advanced tasks such as animation, you shouldn't assume from the description that an application will do exactly what you want. Several editors come in trial versions, so take advantage of them to find software that's easy to use and suitable for your needs.

3D, HD, and SD files to sites such as Facebook, YouTube, and Vimeo.

New to this version is the Stop Motion Animation feature, which includes autocapture to reduce the number of mouse clicks required of the user. There's also a new Time-Lapse tool that allows you to assemble hundreds of photos, taken over time, into video form.

VideoStudio Pro X4 comes with additional improvements for the creation process itself, such as an enhanced library to help you organize your media files. We like the fact that you can make different media libraries (staging areas for your files) for each video project, which protects your little Library window from unnecessary clutter.

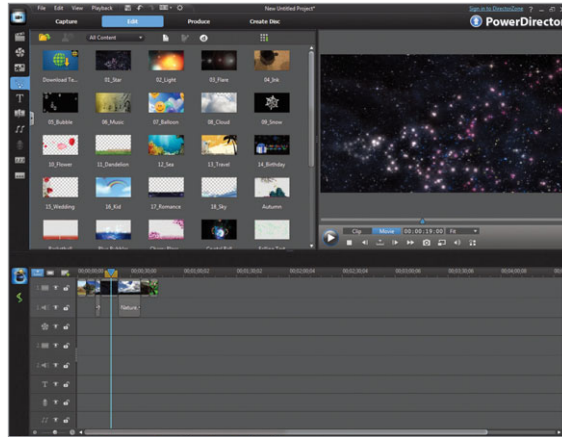
Flexible video tracks let you perform advanced operations such as putting titles behind on-screen objects. Corel also lets you fade special effects into or out of your clips.

"We've enhanced Instant Project to allow users to make great productions just by dragging canned projects to the timeline and replacing the content with their own," says Piros.

You can now share the templates you create, too, so that anyone making videos for your organization can adhere to a standardized look, feel, and sound. And should you need to transfer a VideoStudio project to another computer before it's finished, you can now zip it and encrypt it using Corel's Smart Packaging feature, now integrated with WinZip.

CyberLink PowerDirector 9 Ultra64

In the last few years, CyberLink (www.cyberlink.com) has been in the vanguard of software developers embracing technological innovations, such as hardware acceleration through CUDA (Computer Unified Device Architecture). Now it's the first with native 64-bit operation in the consumer video-editing market, it says. Whereas most consumer software is 32-bit, PD9 Ultra64 is a true 64-bit app that can take advantage of 4GB or more RAM, as long as you're running a compatible 64-bit version of Windows.



CyberLink PowerDirector 9 Ultra64

64-bit operation is a killer differentiator if you plan to work with high-definition content, which requires a lot of memory. With HD footage, 64-bit operation can reduce latency and speed up processing quite a bit. CyberLink says that PD9 takes better advantage of the RAM in a 32-bit system, as well.

Also new to PowerDirector are graphics optimizations for AMD Fusion and Intel second-gen Core CPUs. Along with multithreading support for multicore processors and the memory enhancements we described above, the new optimizations flesh out CyberLink's True-Velocity initiative for version 9.

Because so many users are discovering that some DSLR (digital single-lens reflex) cameras make great camcorders, PD9 supports video and photo files, including RAW files, from Canon and Nikon models. The software also can now import FLV (Flash video) and MKV (Matroska video) formats, which have become important in this age of YouTube and HD.

PowerDirector's timeline now supports up to 100 video and audio tracks, so it can handle deeply complex projects. The software has long been able to save the audio from a video clip as a sound file; now

it can do so in M4A, WMA, and WAV formats. And its new, expandable editor for audio sound effects comes with support for VST (Virtual Studio Technology) plug-ins.

Importantly, PowerDirector supports video export to a very broad array of mobile devices, including the iPad and Google phones. It also simplifies the upload process to YouTube and Facebook.

CyberLink is known for providing free patches over time, so we weren't surprised to see an update prompt soon after we installed PD9 Ultra64 and its Content Pack. The company's patches often improve performance and compatibility, so there's little reason to skip any updates.

If your company has no HD plans, or budgets are tight, consider PD9's \$69.95 Deluxe version. It leaves out native 64-bit operation and burning to BD and AVCHD (Advanced Video Coding High Definition; HD on a DVD).

LoiLoScope 2 (beta)

It's often hard to tell, at a glance, one video-editing app from another. Not so with LoiLo (loilo.tv), the Japanese company that broke convention with its quirky interfaces a few years ago.

LoiLo's big idea was to put elements such as the video timeline and media library on a virtual, CUDA-accelerated Desktop. As in Google Earth, but with a bit more immediacy, you can zoom into or away from the Desktop with your mouse wheel or buttons. If you want to see something front and center, just click and drag it. Want to preview a clip? Simply hover your mouse pointer over it.

It's almost easier for novice users to learn to use LoiLoScope, as its hands-on approach is more intuitive than many video-editing veterans might expect.

BUYING TIP

Many editing apps offer content packs with additional stock footage, images, menus, templates, and more. If you download and install these up front, you might avoid feeling creatively limited in the middle of a time-sensitive project.

More than one vet has exclaimed, “It can’t be that obvious...!” about an operation, only to find that with LoiLoScope, it is.

Newbie or old hand, you’ll want to check out the software’s new interactive guides to take advantage of the benefits of its unique user interface. The software launches with a text-and-icon list of tasks LoiLoScope’s interactive guides can show you how to perform, such as uploading to video sharing sites and creating slideshows.

We took a look at a prerelease version of the new LoiLoScope 2.0.2.1. (The previous edition was called Super LoiLoScope.)

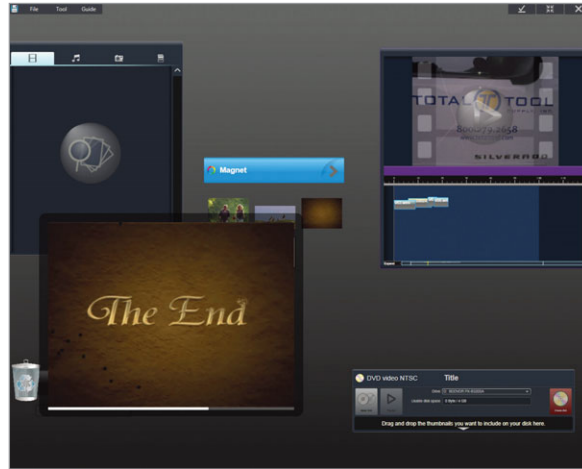
Among version 2’s new features is compatibility with Intel’s Quick Sync Video technology built into its “Sandy Bridge” Core processors. LoiLo says that the optimization speeds up encoding of MP4 and BD files.

LoiLoScope also now has a DVD/BD creation tool that supports disc burning. There’s the slideshow movie assembly feature we mentioned, plus a new tool for making credits at the end of your video projects. LoiLoScope 2 also shows the waveform of sound data now and comes with a new Time Remapping tool and support for pause inserting.

We like the fact that LoiLoScope can easily brighten video that’s too dark, blur out portions of it, capture still images from it, slow it down, and speed it up. It also offers YouTube HD, Vimeo, and Facebook uploading support.

The software accepts video formats such as AVCHD/AVCHD Lite, HDV, H.264, and JVC’s Everio and Pcsio. It can output formats compatible with Apple devices, mobile phones, and more.

Once you use LoiLoScope’s interface for a few minutes, you’ll realize that it’s a natural for multitouch support. Hence this feature is available in the \$118 LoiLoTouch for Windows 7 Home Premium or better. As tablets and touchscreens invade the business



LoiLoScope 2 (beta)



Magix Video Pro X3

world, this full-featured app—it has all of LoiLoScope’s power—warrants your serious consideration.

Magix Video Pro X3

As the \$399.99 price tag indicates, Magix Video Pro X3 (www.magix.com) belongs to a more professional tier of editing apps than the others discussed in this article.

BUYING TIP

Time is money in the business world. You can cut your rendering time by running your video-editing software on a PC with a fast graphics card, processor, and hard drive. We also suggest 4GB of RAM or more (to make use of which you’ll need 64-bit Windows Vista or Windows 7) and a Full HD (1080p) widescreen monitor or two.

Some of the perks of the price jump are the ability to edit footage from up to nine cameras on a single project and multi-monitor support. Video Pro X3 can import XDCAM, HDV, and other video formats. It also supports timecode rendering into your video, effects masking, and three-way color correction. Basically, if your company has invested in serious production equipment, you’ll need to up your game with serious editing software.

New in version X3 of Magix Video Pro is a long list of performance boosts, including 64-bit RAM addressing and enhanced memory management. It can do background loading of thumbnails now, and it incorporates GPU (graphics processing unit) acceleration for 3D operations. X3 can import DVCProHD and DVCPro50 video, with AVC-Intra support being optional.

The software now boasts better rendering of video previews, which can make it easier to gauge the look and timing of special effects before you commit. Importation of files from memory cards is now easier, as well, and the work panels are resizable.

As for 3D video, Magix endowed X3 with broad Stereo3D support for anaglyph, side-by-side, and polarized/interlaced content. The new powers are complemented by 3D titling, plus a variety of automatic and manual alignment and keyframing options.

Magix also improved Video Pro’s format support. Version X3 can make BDs with H.264 videos, not to mention iPad-compatible clips. Added to the bundle are

NewBlueFX video effects plug-ins, plus effects templates—150 of them—and image stabilization apps from proDAD.

Audio analysis makes it possible for X3 to automatically synchronize objects in the timeline using their soundtracks. X3 also supports both VirtualDub and VST audio effect plug-ins, as well as plug-ins for frameservers.

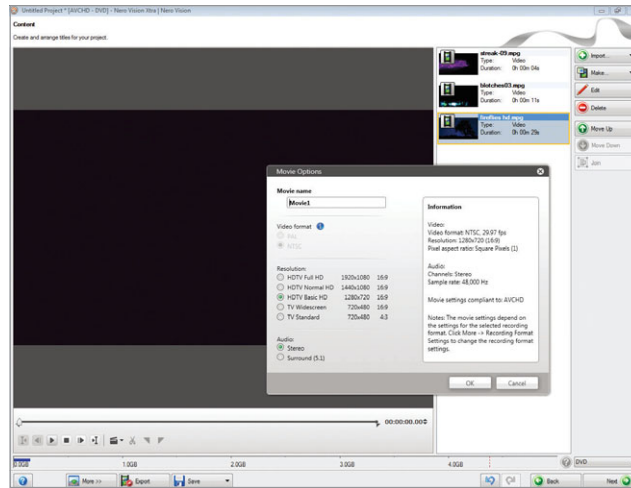
Magix also gives users better undo, restore, and redo options than ever. Panning effects are similarly improved, especially in the presence of black edges.

Finally, there are new mouse modes that can ripple one track or all the tracks, four-point editing, and a new smart rendering mode to save time during AVCHD creation.

Nero Video Premium HD

We were able to take a look at the company's novice-friendly, flagship editing app, Nero Video Premium HD (www.nero.com).

Somewhat confusingly, this software calls itself Nero Vision Xtra in most places. After you activate it, however, it will be



Nero Video Premium HD

known as Nero Video Premium HD in the serial number activation section of Nero ControlCenter. We updated our copy to version 7.4.10800.7.100 before testing.

Nero Video Premium HD builds on Nero Vision Xtra's feature list by

including BD playback support from the get-go, instead of as an add-on or something you have to pay to activate later. It also comes with additional HD video effects and transitions, sports and seasonal themes, and picture-in-picture animation.

At its debut last fall, Nero Video Premium HD introduced additional content transcoding options for a larger number of devices, plus background rendering of HD content. The app can convert Microsoft PowerPoint 2010 presentations into videos.

It also allows online access to Nero HD Theater, a showcase for user-generated video with community features such as a forum. Finally, there's AVCHD support, CUDA acceleration, and support for BDs with 24fps (frames per second) video. ■

BUYING TIP

If you're planning to edit in 3D, don't forget that you'll need a compatible monitor(s) and eyewear, as applicable. Likewise, surround-sound editing behooves you to buy a good sound card and quality multichannel speakers.

VIDEO-EDITING SOFTWARE AT A GLANCE

Product Name	Price	Company	Contact Info	URL	OS Compatibility	Notable Features
VideoStudio Pro X4	\$49.99	Corel	(877) 582-6735	www.corel.com	WinXP/Vista/7 (32/64-bit)	Movable/resizable panels let you customize your workspace, even over two monitors
PowerDirector 9 Ultra64	\$89.95	CyberLink	online form	www.cyberlink.com	WinXP/Vista/7 (32/64-bit)	Native 64-bit operation in an app priced for consumers
LoiLoScope 2 (beta)	\$88	LoiLo	online form	loilo.tv	WinXP/Vista/7 (32/64-bit)	A zoomable, draggible, "yes, it's that easy" workspace with powerful capabilities
Video Pro X3	\$399.99	Magix	(305) 722-5810	www.magix.net	WinXP/Vista/7 (32/64-bit)	Pro-level software for pro-level video production
Video Premium HD	\$69.99	Nero	(877) 727-6376	www.nero.com	WinXP (32-bit); Vista/7 (32/64-bit)	An inviting, friendly interface promotes easy learning

Edge-HD2 Mini PC

A Great PC In A Small Package

Earlier this year, Sapphire introduced its Edge-HD Mini PC, which is an entry-level desktop PC packed into a rubberized case that's shorter, narrower, and about twice as thick as an iPad. We were impressed with the Edge-HD's ability to handle a variety of common computing tasks as well as a multitude of multimedia workloads without buckling under the stress. Fast-forward six months and Sapphire's back with the more capable Edge-HD2.

In With The New

Outwardly, the Sapphire Edge-HD2 is identical to the previous generation; it comes in the same rectangular 7.6 x 5.8 x 0.9-inch (height x depth x width) shell, vented at the convex top and bottom edges. Like the older model, the Edge-HD2 comes with a stand for mounting vertically. When we reviewed the previous model in *Smart Computing's* April issue, we lamented the lack of a VESA (Video Electronics Standards Association) mount, which lets you bolt it to the back of a monitor or HDTV. Sapphire appears to have been reading; there's now a VESA bracket included in the box.

The back edge of the unit features a VGA (Video Graphics Array) port, HDMI port, Gigabit LAN port, headphone and mic jacks, two USB ports, and a power adapter port. The front edge features two additional USB ports. It also has an HDMI cable and an HDMI-to-DVI adapter. Overall,



With the included adapter, that HDMI port also lets you connect the Edge-HD2 to a DVI display.

the Edge-HD2 weighs only slightly more than a pound.

Secret Sauce

Under the bun, the Sapphire Edge-HD2 has a souped-up Intel Atom D525 processor, which has two cores that run at 1.8GHz each. The low-power processor also supports Intel's Hyper Threading technology, so the operating system and multi-threaded software see it as a quad-core processor. There's 2GB of memory in the Edge-HD2 and it still operates at 800MHz, but because DDR3 is quad-pumped, it runs at a lower frequency, requires less power, and generates less heat than the memory in the first-generation Edge-HD. Sapphire also boosted the storage from 250GB to 320GB so you can store even more applications, files, photos, videos, and documents. There's also built-in 802.11b/g/n that lets you connect to Wi-Fi networks.

Sapphire stuck with the Nvidia ION2 graphics adapter for the Edge-HD2, which is the same graphics adapter found in notebooks. It has 512MB of dedicated video memory and support for hardware-accelerated 1080p HD video playback. Using the HDMI port or DVI adapter, the Edge-HD2 supports resolutions up to 2,048 x 1,536.

More Powerful, Still Green

Sapphire's original Edge-HD consumed 22 watts when its CPU, graphics, and hard drive were working hard and significantly less under most computing scenarios. Considering the significantly improved specs, we were impressed to discover that the energy footprint is still very small: just 30 watts under load, or a tenth of what a standard PC consumes.

OS Choices

An omission we noted in our review of the original Edge-HD was the OS.



The bundled VESA mount lets you tuck the Edge-HD2 behind your monitor or HDTV.

There really wasn't an operating system; we had to install Ubuntu Linux to test it. Sapphire has remedied this by offering a version of the Edge-HD2 with Windows 7 Ultimate preinstalled, though you can get a FreeDOS version if you want to install something else. Sapphire also ships the unit with a driver disc to assist those with DIY aspirations.

Final Thoughts

Between the Edge-HD and the Edge-HD2, Sapphire addressed many of our criticisms, boosted the specs in unexpected places, and put together a much more enticing package. We recommended the original for anyone looking for an unobtrusive home-theater PC, but this new model also has the chops to handle business applications—including those that require 3D rendering capabilities. It can also handle some light gaming and even BD (Blu-ray Disc) playback (we used an external BD drive to test this). ■

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EnGenius 300Mbps Wireless N Gigabit Router

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At first glance, the EnGenius 300Mbps Wireless N Gigabit Router ESR-9850 is just a demure white router, but under that unassuming façade are smart features that get the most out of its already solid specifications.

Specifications

The ESR-9850 is an 802.11n Gigabit router and is capable of a theoretical 300Mbps data throughput. EnGenius has packed in plenty of technologies to coax the best performance out of this relatively inexpensive router, including a Gigabit Ethernet switch, NAT (Network Address Translation), and a Range Expander to get more out of the antennas.

It also includes a number of security features, such as WEP (Wired Equivalent Privacy), WPA (Wi-Fi Protected Access), and WPA2 encryption. You can easily set up the encryption with the WPS (Wi-Fi Protected Setup) button. Other security features include an SPI firewall, Mac address filtering, and policy-based parental controls.

Wireless routers typically provide reduced throughput when multiple users are engaged in high-bandwidth activities, such as streaming video or music, gaming, or participating in a video chat. To avoid those performance issues, the ESR-9850 has WiFi Multimedia technology, which separates and prioritizes different types of

traffic. For instance, a VoIP call would take precedence over the file download in the network's priorities. Although a file that is being downloaded to another PC on the network may download at a slower pace, it ensures that the VoIP call is smooth and clear.

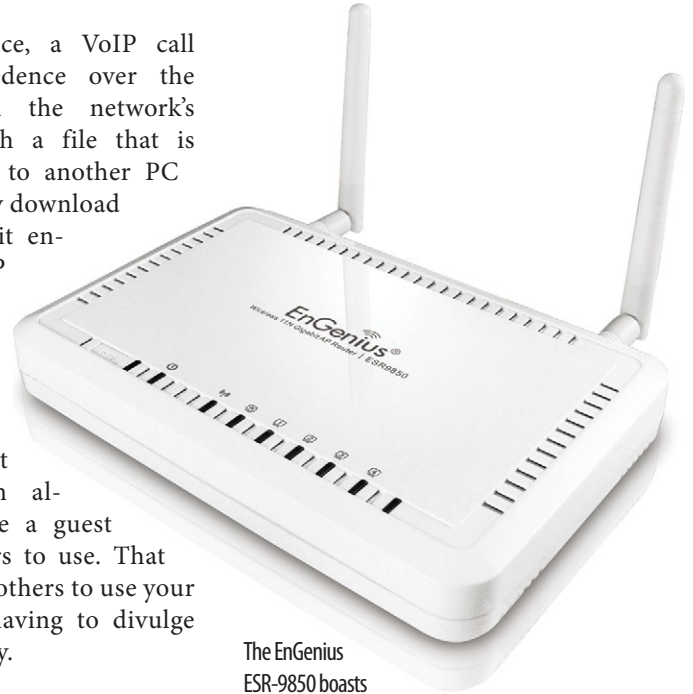
Among other handy features is multiple SSIDs (Service Set Identifiers), which allows you to create a guest network for visitors to use. That way, you can allow others to use your network without having to divulge your encryption key.

Design

A pair of white antennas protrude from the otherwise low-profile, all-white router. The antennas are easily removable so that you can actually upgrade to more powerful antennas at some point if you so desire. There is a bank of blue and red status lights on the front top of the ESR-9850, as well as the WPS button.

All the ports are in the back; in addition to the two spots for antennas, the router has a DC jack, WAN port, and four LAN 10/100/1000 ports.

It also has a reset button that is designed to be nearly impossible to press inadvertently, ensuring that you won't accidentally disrupt your network when handling the router.



The EnGenius ESR-9850 boasts plenty of smart and powerful features under the hood.



The back of the EnGenius ESR-9850 sports two antennas, a DC jack, WAN port, and four LAN ports.

Setup is relatively easy; just follow the instructions on the included installation disc and you can be surfing the Web within minutes.

Performance

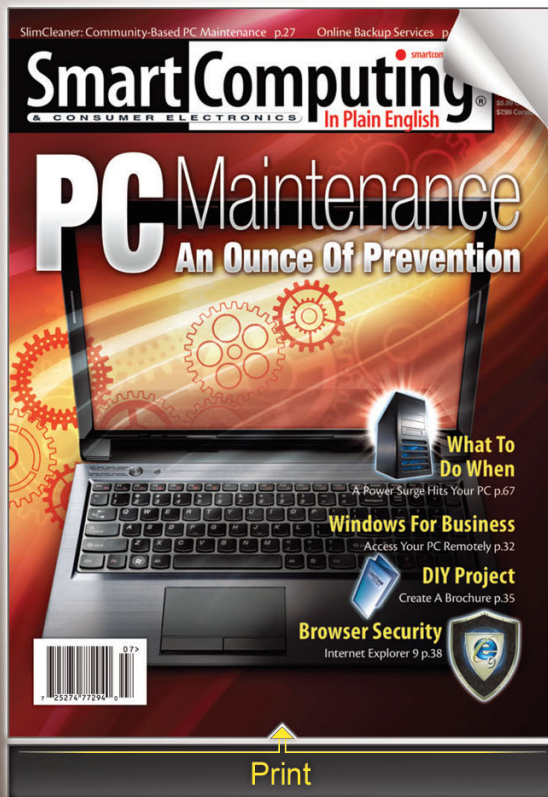
With the ESR-9850, there can be multiple users on the wireless network at once doing multiple tasks, even, apparently, at a distance. We maintained a full wireless signal at over 80 feet away in a straight line, and at about 60 feet with some obstructions.

A strong signal persisted for an additional 90 feet, even through a couple of walls. The signal became weak but still usable outside the building, at around 150 feet. Thus, it will deliver solid performance for virtually any home or small office setting, or for a substantial group of workers within a larger office setting. ■

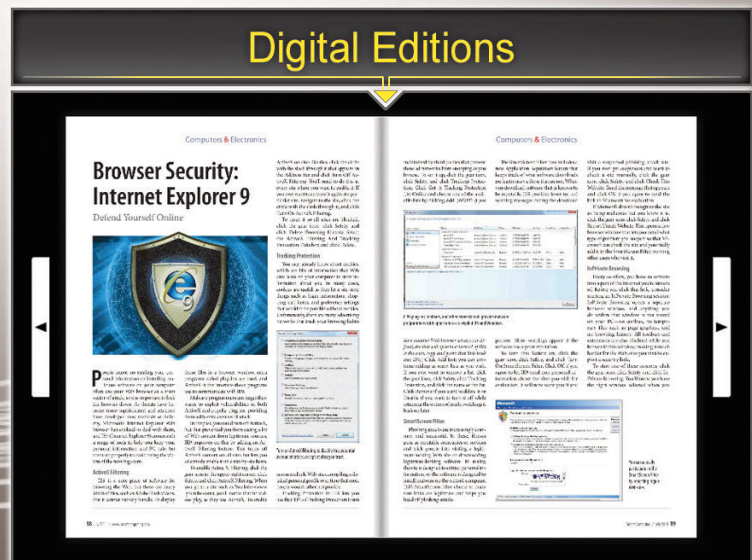
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Systems Supported



Data backup is one of the great bugbears for business owners, especially smaller firms without dedicated IT (information technology) staff. Online-backup firm Carbonite has recently added dedicated business offerings to its roster and is a good choice for failsafe (secondary) backup or even primary backup, depending on your needs.

Back It Up

Carbonite is easy to install and run from the company's Web site, and a 30-day, full-feature trial will get you going. Installation is a two-step process—you register for the service, then open your company dashboard and run the software installation. The online dashboard is also where you add more computers (or invite users) to the backup list, see how much space your backups consume, view and/or restore files being backed up, and more. Carbonite also installs an Info Center on each PC, accessed via an icon in the System Tray, where you can back up, restore, set various options, and perform other tasks.

During installation, Carbonite offers to initiate backup of a recommended set of business files. If you opt for Custom setup, you can establish your own backup set, which can include external hard drives. Carbonite does not present a listing of files and folders you can select for backup. Instead, after installation you flag files, folders, or drives for backup (or not) by right-clicking them and selecting the Carbonite menu option. There is also a Properties option that gives you access to more settings, including backing up all files of the selected type.

If you establish a small backup set, Carbonite periodically will issue a pop-up window that suggests additional files and folders to back up and ask if you want Carbonite to scan your entire PC for candidates. Carbonite does

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R Williams (Administrator)	-	-	-
1 users (1 administrators)	0 computers	0 GB	

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McAfee SECURE
TESTED 10-JULY
SSB Rating: A
as of 7/10/2011

Key Features: Easy to set up and use, Carbonite automated remote backup takes the hassle out of the backup process for small and home offices.

not support multiple backup sets, but it does allow you to set your own backup schedule if desired. Carbonite causes little resource drain so it's easiest to let Carbonite schedule your backups.

Bring It Back

File restoration is easy with Carbonite as well, and you can restore files from both the PC interface and the online dashboard. Carbonite offers two options—Complete Restore and Selective Restore. The latter lets you pick and choose which files to retrieve. You can also retrieve files with your smartphone (iPhone, Android, or BlackBerry) and can even have Carbonite ship your files on a hard drive if necessary. Being able to retrieve files from the online interface makes Carbonite a handy choice if you frequently need work files at home or on the road.

Carbonite Business provides 250GB of storage with no per-PC charges. Businesses that need more space or require server backup can upgrade to Carbonite Premier (500GB of storage; \$599 per year). Optionally, if you only have one or two computers, you can access unlimited online storage for \$59 per PC, per year.

Carbonite has a good reputation, and all files are encrypted on your machine before being transmitted securely and stored at a best-practices data center where personnel are access-restricted. Establishing the initial backup set can take days, depending on backup size and connection speed, so maintain your alternate backup method until this process is complete. (A red dot next to each file or folder indicates it is backed up.) Carbonite offers phone, email, and live chat support, as well as a Valet Service that can establish your optimal backup parameters. ■

Highrise Plus

Contact Management

\$49 per month | 37signals
support@37signals.com | www.highrisehq.com

Systems Supported
 Mac OS X  Windows XP | Vista | 7

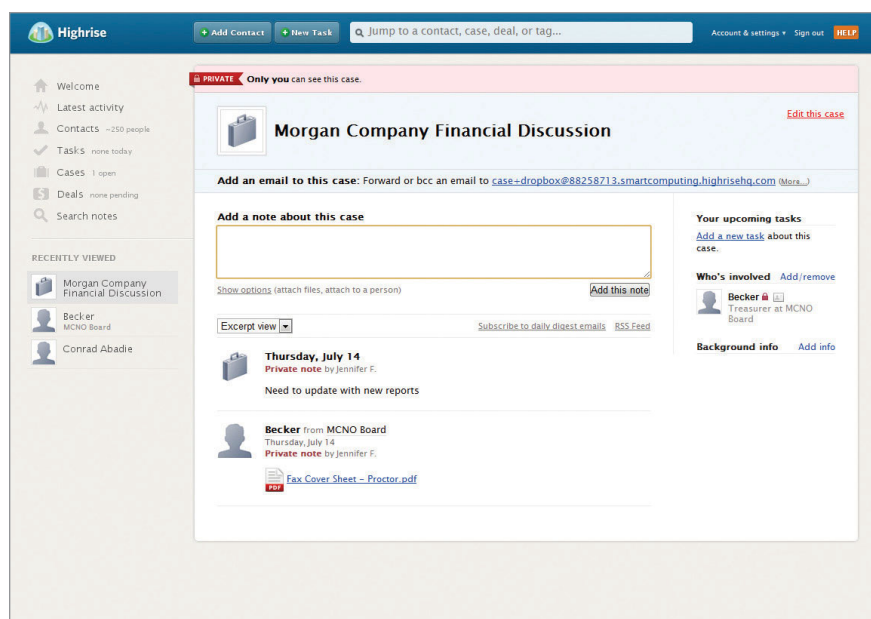
For small or home businesses, finding an uncomplicated way to organize and access all the details and relationships associated with your business contacts can be mind-numbing. CRM (customer relationship management) software can be arduous to set up and maintain (not to mention expensive), yet basic address books and contact managers just don't get it. If you like the idea of contact-centric data management and would love to have every bit of data about a client—from email messages to proposals, contracts, and more—at your fingertips, Highrise may be your answer.

Importing Contacts

Highrise is a fully Web-based, SaaS (software-as-a-service) product you access from your PC or Internet-connected mobile device. There is also an iPhone app, and the company reports that Android and BlackBerry apps are in the works. With Highrise, you create a contacts list either manually or by importing details you exported from another contact manager. From that point forward, you can write notes, create tasks and alerts (for yourself or others), add tags, identify social networks, provide details, and associate (attach) files of any type to a contact. You can make contacts private or share them with your team and set permissions that control what others can access.

You can also create cases and deals for a contact. Cases are digital folders that associate and organize notes and attachments specific with a particular project, product, activity, etc. Deals enable you to track bids and associate proposals, contracts, notes, and other data with them. All this data is stored under the central unit of the contact, but you can also organize and view the information by tasks, deals, or cases.

Highrise is really a breeze to use once you get going, but we found the contacts import engine to be a bit finicky. We



Key Features: This easy-to-use, Web-based software keeps everything related to your contacts accessible through a single interface.

suggest you export your data to a text (TXT) or comma separated values (.csv) file before import. Highrise will then ask you to match the field information, and if you have custom fields not available by default, you will need to create them before import. (If you get started and realize you need a custom field, you can cancel the import and start over quickly.)

Managing Contacts

Integrating email with Highrise requires some extra steps, but it's easy once you get used to it. Highrise gives you an email dropbox address (an account-specific email address). When you send or forward an email to your dropbox address, Highrise automatically matches it with the appropriate contact, if possible. Most email clients should let you set up a rule that automatically blind copies every incoming and outgoing email to your Highrise dropbox address, which makes things easier. Highrise also

provides a nifty bit of coding—a “task+” feature that lets you send an email and create a task at the same time. Just email your account with Task+Today, Task+Tomorrow, Task+ThisWeek, Task+NextWeek, or Task+Later (for example, task+today@youraccount.highrisehq.com) and Highrise will create a task around the information.

Pick Your Package

Highrise Plus supports up to 20,000 contacts with 15 users, unlimited deals, and 15GB of storage. (All associated files and information are stored online, which also makes Highrise a backup resource and gives you access to your information, anywhere.) Highrise offers higher- and lower-tier packages, from a free version (two users, no files, 250 contacts) to the Premium plan (\$99 per month; up to 40 users, 30GB of storage, unlimited deals, and 30,000 contacts). Overall, we found it to be a very nifty and worthwhile tool. ■

Windows

News, Views & Tips

Microsoft plans to expand the number of its retail stores considerably over the next several years.



MICROSOFT NEWS

Hotmail Gets Two New Security Features

Hotmail has rolled out some new features designed to improve account security. For starters, the service will soon prevent customers from choosing several commonly used (read: easy-to-guess) passwords when signing up for an account or changing a password. Those already using common passwords will likely be prompted some time in the future to change it to a stronger password.



Hotmail now lets users report when a friend's account is likely being used for spamming/phishing.

account and allow the rightful owner to recover control of the account. Microsoft says the system will also notify other email providers such as Gmail and Yahoo! so they can take similar steps.

Hotmail users now also have an easy way to report when they receive spam or phishing email from a friend or family member, because this usually indicates that the sender's account has been compromised (often without his or her immediate knowledge). Any questionable messages received can be marked as "My friend's been hacked!" This will alert Hotmail to take steps to block the unauthorized user from accessing the

Microsoft Looks To Expand Retail Presence

Microsoft's brick-and-mortar retail stores are currently few and far between, with a mere 11 "Microsoft Stores" open across the United States. But that number is set to increase in the near future, as Microsoft COO Kevin Turner recently told attendees of Microsoft's 2011 Worldwide Partner Conference that the company plans to open 75 additional stores "over the next two to three years."

A map outlining the planned locations indicates much of the expansion will take place in the northeastern United States, Florida, and California. ■

WINDOWS TIPS

Pin Web Sites To The Win7 Taskbar With IE9

If you're using Win7 and Internet Explorer 9, you can get more convenient access to frequently visited Web sites by pinning them to the Taskbar. To pin a site, just drag its tab down to the Taskbar, after which you'll be able to access the site without having to open IE9 first.

Moreover, if a pinned site has been designed to be IE9-aware, you'll be able to take advantage of additional features, including notifications and right-click Jump Lists that take you directly to specific areas of a site. For example, pinning Amazon.com gives you access to your shopping cart, order status, and customer service, and if you pin Hotmail or Facebook, their Taskbar icons will inform you when you have new messages waiting.

Middle-Click Taskbar Icons To Open & Close Windows

For a quick and easy way to open a new window for a running program, put the mouse cursor over the program's Taskbar icon and click the middle mouse button, which on most mice is the scroll wheel. (NOTE: This applies to programs that support multiple open windows, such as Internet Explorer, Windows Explorer, Word, Excel, etc.)

Conversely, you can close any of a program's open windows by middle-clicking the window's Taskbar thumbnail image.

Master Text Selection In Microsoft Word

Most people know that you can click and drag to highlight text in Microsoft Word (or double-click to highlight a specific word), but there are several other less obvious methods to select blocks of text both large and small.

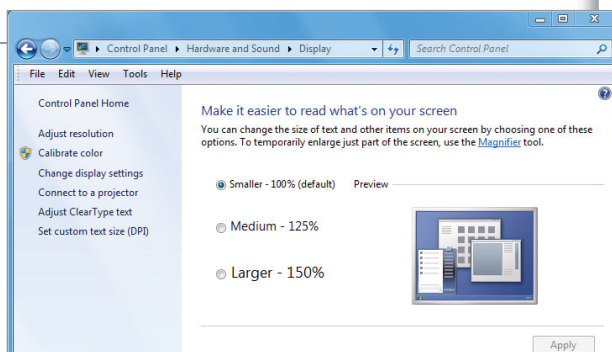
For example, triple-clicking will highlight a paragraph, and holding down CTRL while clicking a word will highlight the entire sentence. In addition, you can select text vertically instead of horizontally by holding down ALT while you click and drag with the mouse; this is a handy way to remove unwanted characters, such as bullets, from the beginning of multiple lines simultaneously.

Optimize Your Display

If the image on your monitor isn't looking quite right, you may be able to improve its appearance with Win7's built-in DCC (Display Color Calibration) tool. To run the DCC tool, click Start and open the Control Panel. Next, click Hardware And Sound and then click Display. Finally, click Calibrate Color, which appears on the left side of the window.

DCC will show you a number of test patterns and sample images to help you fine-tune visual settings such as gamma, brightness, contrast, and color (you'll need to use your monitor's built-in controls to adjust some of them). When you're finished, you'll be able to compare your new calibration with the previous one before deciding whether to save your changes. Then, you'll have the option to run Win7's ClearType Tuner to make sure text looks sharp. ■

Windows 7's Display Color Calibration tool can help you fine-tune your monitor's image.



WINDOWS NEWS

Support Ends For Windows Vista SP1

Microsoft has ended support for Microsoft Vista with SP1 (Service Pack 1) effective July 12, 2011, which means the operating system is no longer eligible to receive software updates.

To continue to receive important operating system updates, including security patches, Vista users should be sure they have SP2 installed. You can download it via Windows Update or from tinyurl.com/389loab.



Windows®

Incidentally, if you're still using Windows XP (SP3), you've got a while longer (until April 8, 2014) before Microsoft pulls the plug on your updates.

Autorun Fix Leads To WinXP/Vista Malware Drop

Recent updates to WinXP and Vista that were designed to block the spread of certain types of malware via the Autorun feature appear to be having the intended effect.

The updates, which were released beginning in February 2011, locked down Autorun to prevent malware from running automatically when an infected USB storage device was inserted into a PC. Microsoft says that by May 2011, the number of infections reported by the company's MSRT (Malicious Software Removal Tool) had fallen by 59% on WinXP and 74% on Vista systems compared to 2010 infection rates. Also, there were 1.3 million fewer infections on WinXP and Vista systems from February to May 2011 compared to the three months prior to the update.

It's worth noting that the updates don't apply to Windows 7, which shipped with the Autorun lockdown already enabled. ■

Free Protection For Your PC

Microsoft Security Essentials

In September 2009, Microsoft announced the official release of MSE (Microsoft Security Essentials), its free security software. Fast-forward nearly two years, and MSE is still cruising along, protecting millions of Windows XP/Vista/7 computers (more than 31 million as of September 2010, per Microsoft). MSE has been independently certified for desktop and server virus detection and for desktop virus cleaning by virus testing firm ICSA Labs (Windows XP/Vista/7). It received the Checkmark Certification from West Coast Labs, scored very well with AV-comparatives.org, and was recently awarded the VB100 award by Virus Bulletin.

So, is it a product you can rely on as your primary anti-malware application? How does it stack up to the top-tier security suites? We recently gave it a test drive to see.

What MSE Offers

Microsoft Security Essentials offers straightforward, real-time protection against viruses and other malware, including rootkits, Trojans, spyware, and keyloggers. It also scans everything on your hard drive (or your external drives, if you turn that feature on), from executable (program) files to email messages and multimedia files.

It protects against malware that arrives via instant message or syncing with another device (it scans files locally, not on the device you are syncing with).

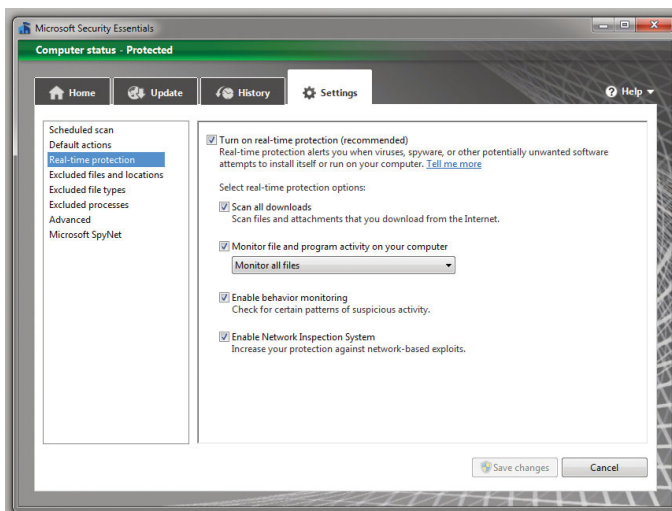
It doesn't protect against malicious invaders such as hackers (it leaves that task to your firewall). Nor does it defend against spam or phishing attacks, which can be handled by your email client and browser, respectively. Finally, it offers no protection against identity theft, which is generally a consequence of malicious invasion or bad Internet habits—two activities it doesn't scrutinize.

In other words, it is not a comprehensive security suite and does not pretend to be. Rather, it fills the security gaps not covered by Microsoft's related, free Windows add-ons—Windows Firewall, Internet Explorer, and Windows Mail or Windows Live Mail, depending on your operating system. So, no matter what security solutions you are already using, MSE can be a final step to achieving end-to-end security at no cost.

How It Works

Like many current anti-malware products, MSE has a cloud (Internet-based) component, although it continually updates and uses locally stored virus definitions to protect

MSE makes it easy to turn off real-time protection temporarily if necessary, although you shouldn't do this for long.



your machine as well. The cloud component for MSE includes Microsoft SpyNet, a community of individuals who have agreed to let MSE harvest varying degrees of information about the suspect files it encounters on their systems.

By using SpyNet, Microsoft is able to compile and access an extensive library of information about how viruses and malware are continually evolving and posing new threats. Microsoft will automatically enroll you in this group at the basic level by default, but you can change your settings if you wish from the Settings tab.

In action, Microsoft maintains a rewardingly small footprint on your machine, working quietly in the background with little to no performance drain. Users generally despise security products that are resource hogs, to the point where some will disable them periodically to speed things up. We feel confident you'll never resort to such a drastic measure while using MSE.

System scanning is reasonably quick, depending on your settings. Quick Scan examines the most likely locations for malicious files to be hiding, but leaves the remainder of your drive unexamined until a later scheduled scan. In our test, MSE scanned approximately 19,000 items in seven minutes. Full Scan will analyze all your files, as well as your Registry, for signs of trouble. This will take much longer (hours as opposed to minutes).

All MSE scans take place in the background, and we felt no overall slowdown of operations while they were running. MSE also lets you customize your scans—not only when they take place and what they scan, but also the resources they use. (This setting only affects scheduled scans, not those you request on demand.)

The fewer resources you allow scans to consume, the longer they can take (the default is 50% of CPU usage). Should you decide to use MSE, visit the Settings tab on the main interface and click Scheduled Scan to establish your personal parameters.

Initial Installation

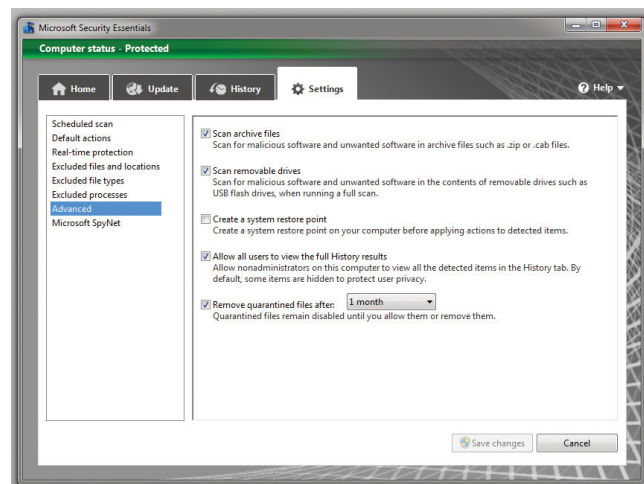
After you download MSE (from www.microsoft.com/security_essentials), you can install it in a matter of minutes. The setup wizard will validate your Windows installation, and if Microsoft cannot verify you are running a genuine copy of Windows, you will not be able to install MSE.

MSE instructs you to uninstall or disable real-time protection for any security software you have in place (you can do this without leaving setup). It also recommends you upgrade to Internet Explorer 9 for its “SmartScreen Filter, which helps combat online threats with a set of sophisticated tools like anti-phishing protection, anti-malware protection, and application reputation,” as the setup wizard notes. (Whether you run it is your call; Internet Explorer 9 works only with Windows Vista and Win7 and has been out fewer than six months, so not all sites are compatible with it. Otherwise, it appears to be a solid upgrade.)

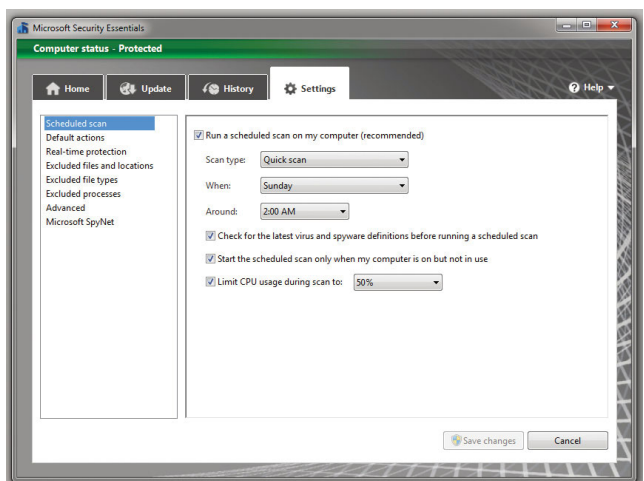
After installation, the setup engine updates virus definitions and offers to launch a Quick Scan of the system. It is always a good idea to let security software scan your system the first time out. If you have not been using protection previously, you should also schedule a Full Scan as soon as possible.

Wish List

MSE doesn't have any objectionable quirks, but it does handle some functions differently than we would like. One feature with which we took issue is scanning. Although MSE offers scan-related options (including the ability to create a Restore Point), you cannot initiate scans for a particular threat, such as a rootkit. This won't bother novice PC users, who are best-served by a



MSE's Advanced Settings let you enable scanning of archives and external drives, plus other options.



Although you cannot establish multiple scan schedules with MSE, you can control several parameters.

comprehensive scan. However, expert users who recognize threat types and think they may have been exposed might like this feature. (Some, but far from all, security products allow threat-specific scanning).

We noticed that you cannot establish more than one scan setting. Microsoft lets you exclude file types, locations, and processes from being scanned, which requires a fairly knowledgeable user to implement safely. However, you can only establish one set of parameters. We would like to see the ability to create multiple scanning scenarios. For example, you might like to perform a Full Scan once a month on Sunday morning, but scan only the most vulnerable (and heavily targeted) areas of your hard drive once a week.

We were also surprised to read user reports that MSE turns on automatic updates in Windows. After

some investigation, a Microsoft MVP (Most Valuable Professional) informed us that MSE uses the Windows Update feature as the easiest and least intrusive way to manage and download updates. In the current release of MSE, how it works with Windows Update depends on your settings for this utility.

You can turn Windows Update off, but you'll have to update MSE manually and should enable the checkbox (located on the Settings tab under Scheduled Scan) that initiates an update before every scan. MSE will alert you if updates become too outdated. Furthermore, if a possible threat is detected, our Microsoft MVP asserted it will scan for updates as part of its threat detection.

Our test machine had Windows Update set to download updates but not install them until we allowed it, because we sometimes leave processes running overnight. MSE did not change this setting. Instead, it prompted us that new updates had been downloaded, which we then installed. You'll have to decide what works best for you, because we don't see Microsoft separating MSE Updates from Windows Update any time soon. Just remember that an out-of-date malware engine can be worse than none at all because it will miss the newest threats and return false positives.

How It Stacks Up

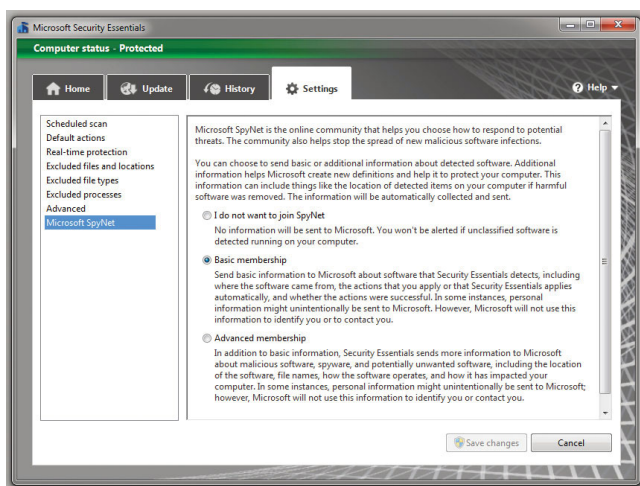
In the end, the answer to our initial question remains elusive. MSE has all sorts of certifications, checkmarks, and awards from major independent virus testing labs.

On the plus side, it has a very low incidence of false positives, which is an increasingly important factor as anti-malware first continue to tweak their identification techniques. False positives can cause harmless or even beneficial files to be quarantined or eliminated and keep you in perpetual crisis mode.

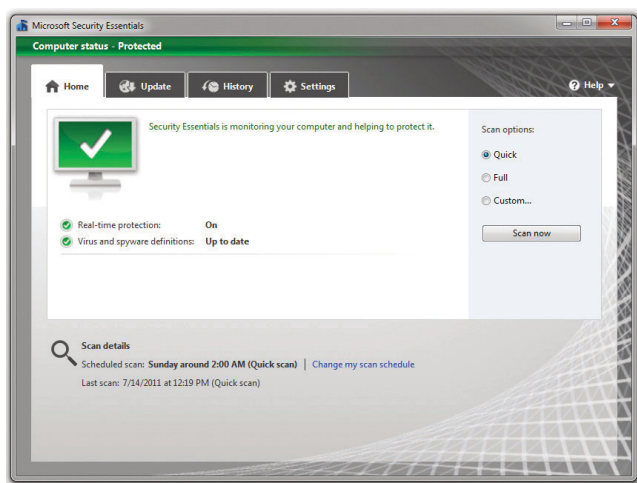
Like most of its competitors, free and paid, MSE detects active malware right away and generates a pop-up box offering to clean your PC. It offers a link to helpful details and gives you the opportunity to decide the threat's fate on the fly. It also lets you set behaviors for threats, when they do arrive, based on severity.

The most recent edition of MSE turns on Windows Firewall if you do not have another firewall in place. It also has added network inspection features, which works only in Windows Vista and Win7. Finally, you can run other spyware removal programs as cross checks against MSE, provided you do not enable real-time protections on them.

Realistically, no program will identify 100% of threats, which are becoming more elusive every day. An uncomplicated, easy-to-use and lightweight program such as MSE, paired with occasional cross checks with other free scanners and the use of the other security tools Windows offers, is an excellent way for folks on a budget to protect themselves effectively. ■



Joining Microsoft's SpyNet lets you be part of the global effort to improve the accuracy and speed of malware detection.

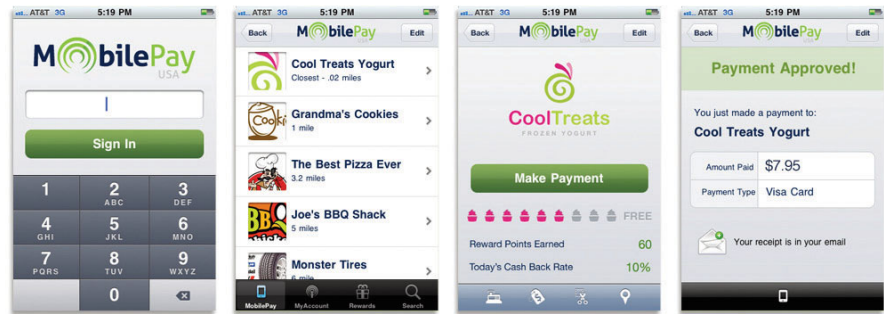


The main MSE interface gives you a quick snapshot of how it is protecting you and your computer against threats.

Business Tech

Accept Mobile Payments

In the not-so-distant future, we'll be using our smartphones to pay for products and services. And we're not just talking about using your smartphone to log on to a Web site, make an online purchase, and enter credit card payments. You'll be able to walk up to the register and authorize the payment through your phone—all within seconds. For example, Google recently announced Google Wallet (www.google.com/wallet), which is a mobile application that will work with specific Android phones at locations where Citi's MasterCard PayPass is accepted. Here, we'll examine where mobile payments are right now, what options are likely to



MobilePayUSA is a service that allows merchants to utilize mobile payments without changing their existing point-of-sale or adding new hardware or software.

appear in the next few years, and how it will affect business as we know it.

Payments Evolved

As the popularity of smartphones continues to grow, consumers and manufacturers find new and exciting uses for them. With mobile payments, you'll be able to turn your smartphone into a digital wallet that you can use to make credit card payments or possibly payments directly from your checking account. Besides the convenience of no longer needing to pull out a credit card or cash, businesses can use the mobile payment services to deliver special deals and other loyalty offers to shoppers, which can help drive in customers for local businesses. Customers also benefit from the online coupons because they'll be able to save money using their digital wallets.

According to MobilePayUSA (www.mobilepayusa.com), "Juniper Research foresees the mobile payment sector exploding into a \$670 billion business by 2015. Our [MobilePayUSA] market encompasses

payments and marketing services for all real world stores, as well as online stores in the near future. We expect up to 25,000 users and 1,000 merchant locations by the end of 2011." Other popular mobile payment vendors, such as PayPal (see page 51 in our August issue), also expect a significant rise in the number and amount of money seen from mobile payments. Because shopping is expected to change in the near future, now is a good time to find a way to join up with mobile wallets.

Mobile Wallet Technology

Digital wallet options are still in the infancy of development, so you'll find a lot of different options for mobile payments. One of the most popular current methods is to embed a payment method for a product or service into your mobile Web site, so that customers can log on to your company page and make purchases. The other common way to pay through your smartphone is via a shopping-related app. The downside to that method is that consumers will need a separate app for each of the businesses where they want to pay with their mobile phone.

MobilePayUSA says that "Multiple shopping-related apps are literally clogging our smartphones, each handling



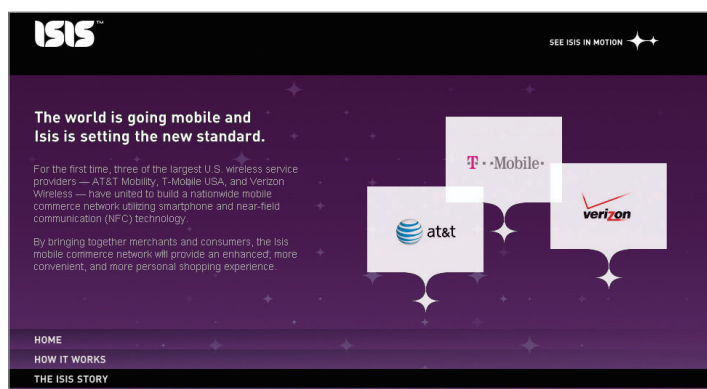
Mobile wallets mean you'll be able to use your smartphone to pay for things you buy.

only one facet of consumer desires. What is needed is a unified platform that allows consumers to add speed and convenience to their shopping experience. MobilePayUSA achieves this by rolling together the best aspects of payment, marketing (Groupon-type offers as well as in-store daily deals), check-in/loyalty, and social networking.” With MobilePayUSA, you won’t need to add any new hardware or software to your business, and it works with the point-of-sale

For consumers, they’ll just need a smartphone, an application that supports the mobile payment system, and possibly built-in technology for delivering the payment—assuming that some form of wireless communication is necessary. Whether the technology is NFC or another wireless standard has yet to be determined. And with services such as MobilePayUSA available, consumers may not even need a specific technology to make mobile payments.

that doesn’t require you to sign a contract or pay a monthly fee just to use the service. Instead, many companies just take a percentage of the payment, and most offer a sliding scale, so that the more customers use it, the less of a percentage will be taken out. For example, MobilePayUSA’s charges start at the greater of 2.5% or 15 cents per transaction for merchants dependent on transaction volume (grocery store volume fees may vary). It will also offer premium-marketing services, such as Groupon-like offerings, with fees ranging from 2.5% to 15%.

One popular current option for accepting payments on the go is Square (squareup.com), which is a credit card reader that you can attach to an Android phone, iPhone, iPad, or iPod touch to accept credit card payments. Square charges a flat fee of 2.75% per credit card swipe. For those who want to join mobile payments for the ability to trigger special offers and loyalty rewards at checkout, note that most mobile payment systems will charge an extra fee or a greater percentage to blast the rewards to the customer. ■



Isis is a joint venture of AT&T, T-Mobile, and Verizon Wireless to provide mobile payments via NFC communication.

systems you currently use. Businesses just need to sign up for MobilePayUSA and speak to a salesperson about a plan that fits your company’s needs.

The customer will download the free MobilePayUSA app, and participating stores will appear on the phone through geolocation (either by phone signal triangulation or GPS signal). The customer selects the Pay Store button and enters a four-digit PIN and the amount to pay. Then, the customer confirms the transaction, which will also appear on the point-of-sale terminal.

One of the most talked about mobile payment methods is NFC (near field communications), which is a technology that exchanges data within a short range, typically less than 4 inches. The main benefit of NFC is that it would be one of the quickest ways to pay, because consumers would just need to verify the charge after swiping their phone near the NFC payment station. With NFC, you’ll need to install a contactless NFC reader and software for your point-of-sale terminal to allow customers to make transactions through their mobile wallets.

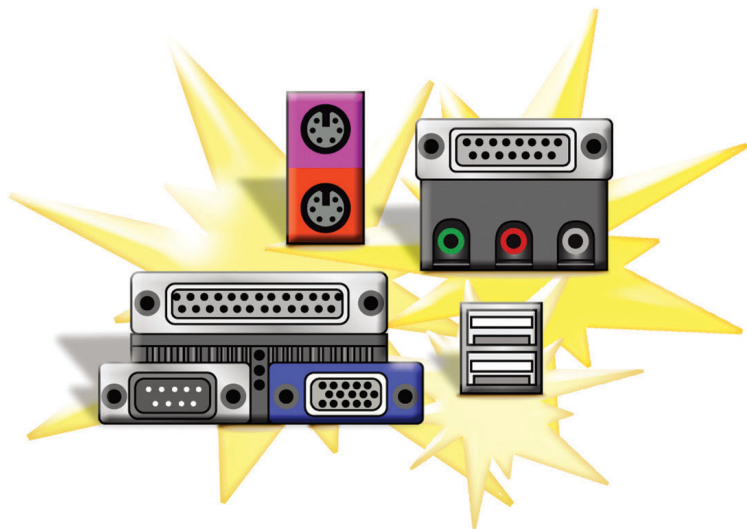
A variety of popular mobile phone manufacturers have stated that they will be incorporating NFC devices into the next generation of smartphones, so it would seem that NFC is the front-running technology. For example, AT&T, T-Mobile, and Verizon Wireless have worked together to create the Isis mobile commerce network (www.paywithisis.com), which will provide merchants and consumers with NFC communication transactions. Isis also recently announced that Visa, MasterCard, Discover, and American Express will be joining the Isis mobile commerce solution. (We’ll also note that the Google Wallet app will require the use of a phone with NFC.)

Costs

Fees will vary per mobile payment service, but most current methods have opted for a pay-per-transaction basis

Square is a mobile payments system that allows you to physically swipe and accept credit card payments through your smartphone.





What's New With Computer Ports

Faster Input/Output For Your PC

Spend any time shopping for new desktops or laptops for your small business, and you might spy a few unfamiliar ports here and there. As you may know, ports are input or output jacks for the peripherals a computer can use, from USB flash memory drives to mice to monitors.

As time has passed, some ports have become faster and faster, even though they may look about the same as they did a decade ago. Others have all but disappeared entirely.

The march of technology that has given us e-commerce transaction databases, high-definition video, and digital photos with more megapixels also spurs the industry to develop faster interfaces (not to mention faster broadband Internet connections) to carry all that data. Ports that can't keep up, or can't be upgraded to speedier versions of themselves due to technological constraints, are left behind.

The ports a PC supports depend on the chips built onto or attached to its

motherboard. Its chipset (core logic) may have built-in USB and Ethernet capability, for example, while a third-party chip added by the motherboard manufacturer adds support for audio. Meanwhile, the CPU might have on-die graphics capabilities to power the motherboard's video outputs, while a chip on an expansion card adds eSATA (external Serial Advanced Technology Attachment) for swift backups to an external hard drive. In all cases, driver software and/or the motherboard's BIOS (Basic Input/Output System) allow the ports to work with the computer's operating system.

In the interests of space, we'll focus on the more recent port technologies in this article. And because several of them have miniaturized versions used in mobile devices, such as the smartphones and tablets invading the business world, we'll mention those as applicable.

Thunderbolt uses a mini-DisplayPort connector to carry a considerable amount of data.



Along with new support for active cables up to 100 feet in length, DisplayPort 1.2 gets a new Active Cable logo.

USB 3.0. The wildly popular USB interface is available in a long-awaited third version. USB 3.0, marketed as Super-Speed USB, has a theoretical speed of 5Gbps (gigabits per second), or 625MBps (megabytes per second). Even though real-world performance is somewhat slower, as with all such interfaces, that's still more than fast enough to keep the new port from bogging down transfers to external hard drives and current SSDs (solid-state drives).

USB 3.0 ports are easy to spot because their center posts are bright blue. Otherwise, USB 3.0 ports are shaped just like USB 2.0/1.1 connectors, namely a rectangular port with a rectangular post (Type A) on the PC end and a square with two beveled corners (Type B) on the peripheral end.

Best of all, version 3.0 is backward compatible with USB 2.0 and 1.1 devices. Those older drives and input devices still run at their original speeds, however.



USB has mini and micro versions, too. In fact, many phones, MP3 players, and other devices recharge their batteries through micro USB. Therefore, if you're buying new computers in today's mobile office environment, it's important to purchase models with sleep-and-charge USB ports. These can continue to charge devices even while the PC is turned off or in Sleep mode.

DisplayPort is a super-fast, 21.6Gbps interface primarily designed to carry video to computer monitors. With this much bandwidth on tap, it's able to accommodate greater resolution, faster refresh rates, and more color depth than HDMI (High-Definition Multimedia Interface). Besides professional media content generation applications, DisplayPort is ideal for multiple monitor setups.

DisplayPort's port resembles HDMI's, except that its connector only has one beveled corner instead of two. Also, DisplayPort's center post is shaped like a shallow letter U. Using an adapter, you can convert DisplayPort to HDMI, DVI (Digital Visual Interface), and VGA (Video Graphics Array).

Some devices, such as multi-monitor graphics cards, have mini-DP

ports, which look like small rectangles with beveled corners. The latest extension to the DisplayPort 1.2 standard lets it support active cables more than 100 feet long.

Thunderbolt. OK, OK. Why is there even a need for this article? Shouldn't

performance to give Apple a competitive advantage over PC vendors.

Thunderbolt in essence is a 10Gbps (1.25GBps) interface that combines PCI-E (Peripheral Component Interconnect Express) with DisplayPort in a single, thin cable. It can daisy-chain



This graphics card's ports, from left to right, are DisplayPort, HDMI, and DVI. It's easy to tell DisplayPort from HDMI by the shape of the connector's outer shell and inner post.

IT companies just make one fast port, and then use it for every kind of device?

Intel's Thunderbolt comes the closest to that kind of goal. The company brought it to market in cooperation with Apple, which very characteristically desired two selling points: the simplicity of a single type of cable and enough

compatible devices, and it supports hubs, which leads to an interesting scenario: Picture your mouse, keyboard, monitor, and external backup drive all linked to your computer through a single cable connection. Even professional external storage with RAIDed (redundant array of

Notebook Ports

These images show the ports available on the sides and back of a recent laptop. We've listed its features from left to right.



On one side, there's Gigabit (1Gbps) Ethernet, USB 3.0 (x 2, blue), USB 2.0, and FireWire (IEEE 1394). The wide slot is for memory cards.



These 3.5mm phono jacks, also called TRS (tip-ring-sleeve) after their cable connector, are for headphone output, microphone input, digital output, and speaker output. To the right are a USB 2.0 port and an anti-theft lock hole.



The rear of our notebook has eSATA, HDMI, and DVI ports. The slanted slots on the left are for ventilation, while the round jack is a DC power input.

Q & A With VESA

The Video Electronics Standards Association (www.vesa.org) is a standards body-cum-trade association responsible for DisplayPort. Board of Directors chairman Craig Wiley took a moment to answer a couple of our questions.

Smart Computing: DisplayPort is much faster than the older PC video interfaces our readers are familiar with. What technologies made it possible to get such performance out of such a small cable?

Wiley: DisplayPort leverages the same high-speed data communication circuitry already being used by other new interfaces, including PCI Express, USB 3.0, SATA III, and others. Such technology, providing a data rate of over 5Gbps per wire pair (which means more than 5 billion data bits per second), is made possible by the ongoing improvement in semiconductor process technology—the same improvements that have brought us powerful quad-core processors in notebook PCs and smartphones that play high-definition movies.

The DisplayPort standard was developed around this new chip process capability. By contrast, existing display standards are more than 10 years old and were designed to work with semiconductor processes that were available then. DisplayPort is unique in that it can support even higher data rates, as they become available from continued improvement of semiconductor technology, while also supporting older systems at the same time. DisplayPort does this using special PC-to-display communication that allows each to understand the other's capability and limitations.

Smart Computing: Say a small business owner is about to buy new displays and/or computers for her company. Why should she make the move to DisplayPort connections?

Wiley: There are two main reasons. First of all, DisplayPort is the highest performance display connector available today—period. The graphics capability of new PC chips takes advantage of the same new semiconductor technology as DisplayPort, with most being able to support at least a 2,560 x 1,600 pixel resolution today. This is twice the number of pixels of your 1080p HDTV display. Display resolution is also following this trend, with higher resolution becoming more common. High resolution means a better picture, less eye strain, and increased productivity. So ensuring your system has DisplayPort will future-proof your system, allowing you to upgrade to higher resolution displays as they become available.

Secondly, several of the major PC manufacturers such as Lenovo, Dell, and HP, as well as both Intel and AMD, have announced plans to phase out VGA and DVI by 2015. With this transition coming in across the industry, DisplayPort inputs are starting to be provided on PC displays today to ensure they will work with future PCs and notebooks.

In addition, DisplayPort was built for backward compatibility by supporting the use of external video adapters. So not only can you leverage DisplayPort on new displays today, but you can continue to use your existing displays while future-proofing your environment.

independent drives) SSDs wouldn't hit a bottleneck on its way to your computer.

Even though it was formerly known by the code name of Light Peak, Thunderbolt doesn't use optical technologies such as lasers or fiber to transmit data. Like the others here, it's based on sending electrons through copper wires. Thunderbolt uses mini-DisplayPort connectors, and it's adaptable to DisplayPort, HDMI, DVI, VGA, and more.

HDMI. The High-Definition Multimedia Interface was developed for consumer electronics devices such as Blu-ray Disc players and HDTVs. However, HDMI has also seen wide use in graphics cards and computer displays. Its

connector's wide rectangle with two beveled corners can be adapted to DVI.

HDMI is notable for its ability to transmit both high-def video and audio. For example, a quality cable rated for 10.2Gbps operation can carry a 3D, 1080p movie as well as its HD surround sound simultaneously.

The current specification, HDMI 1.4a, has a variety of optional features such as advanced 3D formats, Ethernet support, and more. There are mini and micro versions for mobile devices such as smartphones and camcorders.

eSATA. The external SATA interface has been around longer than most of the ports we just described. Until USB 3.0 came along, this port was the fastest link to consumer storage peripherals

such as external hard drives. However, USB 3.0's superior real-world speed and backward compatibility may signal that eSATA's day is done.

Like the internal SATA interface, eSATA may support 1.5Gbps, 3Gbps, or 6Gbps theoretical transfer rates. Some recent eSATA ports also supply enough electrical power to run compatible flash memory drives. However, the majority of ports force users of eSATA flash drives to use a cable to draw supplemental power from a USB port.

Ports Is Ports

Old or new, ports exist to let you do more with a computer or mobile device. And that, of course, means new possibilities for productivity. ■

Browser Security

Chrome



If you use Google's Chrome Web browser (www.google.com/chrome), you're one of an increasing number of people doing so. According to Web analytics company StatCounter, Chrome held a 20% share of the global browser market as of July 1, up from just 2.8% in June 2009. Chrome's popularity will likely only increase now that Google has added the well-received Google+ social network to its stable of other Web-centric offerings, including the Chromebook mobile device and Google Docs, Talk, and Maps. Still, despite there being some truth in "the Web is what you make of it" claim that Google makes, there's also danger lurking on the Web, including malware targeting the browser. To this end, Chrome users can take numerous steps to beef up security and privacy while using Chrome, as the following tips detail.

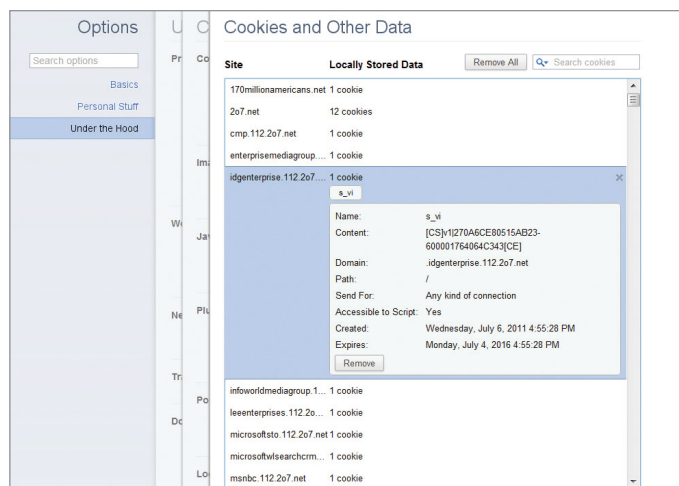
In-House Protection

Chrome natively offers protection against phishing and malware attempts via integrated Safe Browsing, Auto-updates, and sandboxing technologies.

Safe Browsing warns users about to visit potentially harmful Web sites by flashing such visual alerts as "This Site's Security Certificate Is Not Trusted!" and "This Is Probably Not The Site You Are Looking For!" Sandboxing, meanwhile, prevents malware from exiting Chrome to read system files or install itself on a computer. Sandboxing also prevents malware present in one open Chrome tab from infecting another open tab. Auto-updates enables Chrome to regularly check for updates to ensure it always has the latest security fixes and features installed. Outside of these built-in technologies, the following tips can add additional protection.

Go Incognito

All major Web browsers offer a private browsing option to hide your Web browsing tracks as you navigate from page to page. Chrome's approach is called Incognito, and if you use public computers or share a system with multiple office workers and don't want them knowing what you're doing online, using Incognito is good practice. That's because Incognito browsing wipes clear the cookies you've accumulated and history of Web pages you've visited during the browsing session upon closing the window. (Cookies are small files that Web sites you visit create to identify you, store personal preferences, profile data, and other information.)



Chrome enables users to view all the cookies the browser is storing, as well as the data related to each cookie. You can delete cookies individually or all at once.

Incognito, however, doesn't prevent Web sites and third parties from collecting data related to site visits, such as information an employer logs concerning employees' Web browser usage. Elsewhere, bookmarks created and files downloaded remain after an Incognito session ends. Any Chrome extensions you have installed, meanwhile, are automatically disabled in Incognito windows, though you can enable them manually via the Chrome Extensions Manager available in an Incognito window.

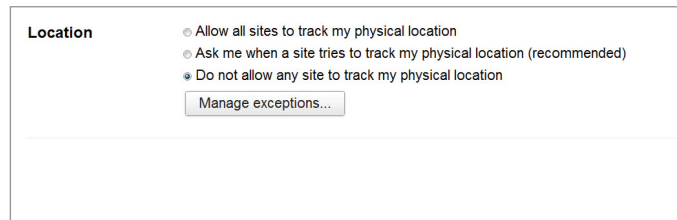
To open an Incognito window, click Chrome's Wrench icon and New Incognito Window or press CTRL-SHIFT-N. Either action will open an Incognito window complete with the verification that "You've Gone Incognito."

Hide Your Location

Location sharing, also referred to as geolocation, is a useful feature Chrome supports to provide users data related to their current location. For example, a travel-related Web site might use location sharing to detail the nearest hotels in your proximity. Google acquires location data using wireless access points near you and your system's IP (Internet Protocol) address and sends the data to Google Location Services to estimate your location, which Google shares with the requesting Web site.

Google states that Chrome "never shares your location without your permission" and, in fact, prompts users to allow location sharing permission and places an icon in Chrome's Address bar if permission is granted. Still, some users prefer their locations never be known. To disable location sharing, click the Wrench icon, Options, and Under The Hood. In the Privacy section, click Content Settings. In the

Location section, Ask Me When A Site Tries To Track My Physical Location is enabled by default. Instead, click Do

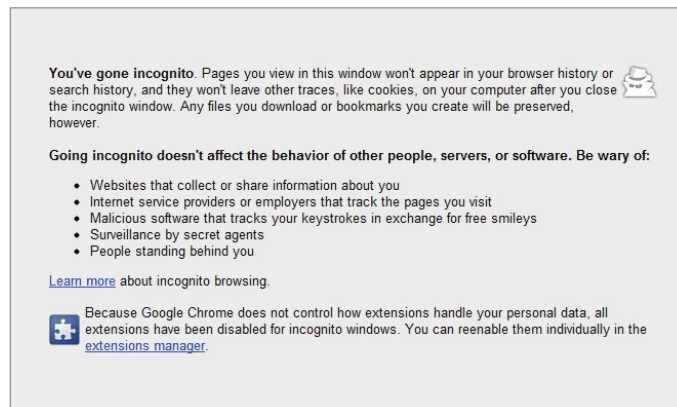


You can prevent Chrome from sharing your location with Web sites by applying the Do Not Allow Any Site To Track My Physical Location in Chrome's Options.

Not Allow Any Site To Track My Physical Location.

Get Rid Of Cookie Crumbs

As mentioned, cookies are files that Web sites you visit and third parties (namely advertisers with ads and images on those sites) create to log information about your visit, including profile information and preferences.



When browsing in an Incognito window, any Web pages you visit, cookies, and Web History will be erased after closing the window.

As Google states, cookies are important because they can let sites "track your navigation during your visit to those sites," a fact some users cringe at. By default, Chrome allows for accepting all cookies, but you have several options to alter cookie permissions, including blocking all cookies by default and allowing certain exceptions. If nothing else, it's good practice to clear all cookies periodically.

To change cookie permissions, click the Wrench icon, Under The Hood, and Content Settings. The Cookies section contains options to Allow Local Data To Be Set (allows all cookies), Block Sites From Setting Any Data (blocks all cookies), Ignore Exceptions And Block Third-Party Cookies From Being Set (blocks only third-party cookies), and Clear Cookies And Other Site And Plug-In Data When I

Close My Browser (clear cookies after closing Chrome).

To view the cookies that Chrome is currently saving, click All Cookies And Site Data. Click an individual cookie to view the data it's storing. You can delete the cookie individually by clicking Remove. Click Remove All to delete all the cookies shown at once. To create exceptions for specific Web sites and domains, click Manage Exceptions and Add A New Exception Pattern and choose an option from the Behavior drop-down menu. For example, upon entering the ESPN.com domain name in the Pattern field, you can apply Allow, Session Only, or Block cookie permissions for the site from the Behavior drop-down menu.

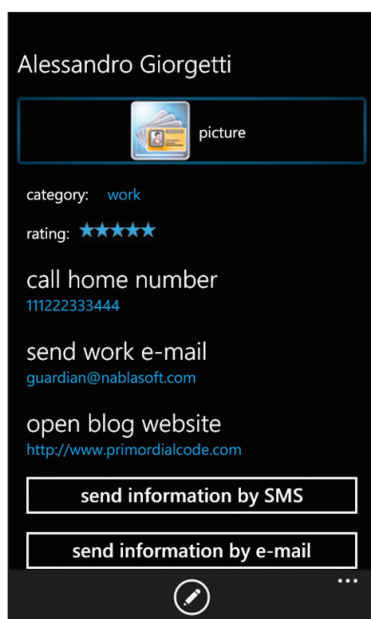
A Safer Chrome

Other information concerning Chrome and browsing security is available at the Chrome support Web site (www.google.com/support/chrome), which contains numerous security-related articles. The Privacy And Security Settings link in the Customize Your Browser and the Page Tools link in the Learn More sections, for example, offer information concerning Chrome's Advanced Security Settings, Plug-ins, deleting Web browsing history, passwords, and security indicators that Google places on Web sites. ■

Mobile Marketplace

Business Apps For Android & Windows Phone 7

Some powerful business tools are floating in the sea of smartphone apps. Each month, we'll highlight some of the best ones for Windows Phone 7 and Android platform users. (Unless otherwise noted, Windows Phone 7 apps are available in the Zune Marketplace, and you'll find Android apps in the Android Market.)

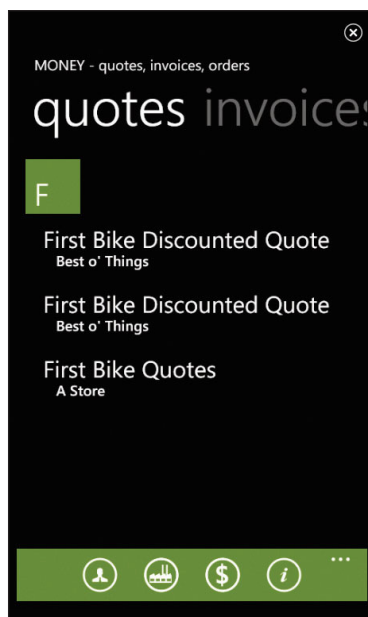


Business Cards

Windows Phone 7

Designed to help you organize your business card contacts for easy reference, the Windows Phone 7 Business Cards app (99 cents; free trial requires WP7 Backup Service via tinyurl.com/3es922v) employs a simple interface for adding contact information. In the Edit Card screen, you can enter a star rating, phone number, email

address, Web site, and physical address. There's a Note section for memos, as well. If your contact doesn't mind being the subject for a brief photo session, you can snap a picture of your colleague and assign it as a thumbnail on the appropriate digital business card. The app isn't simply for storing and looking up contact data: You can also call, text, or send an email directly from a contact. The Business Cards trial version is advertisement-free with no expiration, but you can purchase it to support its further enhancement.



21 Dynamics CRM

Windows Phone 7

CRM (customer relationship management) apps for popular smartphones are bountiful, so it's easy to overlook the apps that include basic functions that

can assist you as a sales representative. 21 Dynamics CRM (\$29.99) is an app that's all about keeping track of leads, monitoring accounts, and organizing invoice data. Divided into three tabs (People, Business, and Money), 21 Dynamics CRM keeps important sales information at hand. Contacts and Leads fall under the People tab; Accounts and Opportunities are in Business; and Quotes, Invoices, and Orders are in Money. You can navigate to a contact using A-Z quick jump and update contact information when necessary. When you need to update notes on the go, they're backed up to a server in real time, saving you the hassle of syncing your device to your laptop. Keep in mind that this app is only compatible with Microsoft Dynamics CRM Online 2011, as of yet.

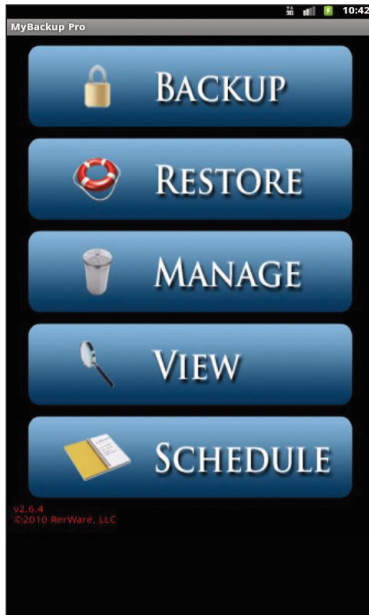


Market Watch

Windows Phone 7

Keeping tabs on your active stocks can be a minute-by-minute task, but when you've got an app that alerts you as the market fluctuates, you don't have to feel like you live and die by the latest news from Wall Street. Market Watch (\$2.99) for Windows Phone 7 pushes stock updates from its multi-source "Server News Engine," so you can check the

most-traded stocks, biggest gainers, top losers, major commodities, and the market indices you follow regularly. Watch lists (that feature unlimited ticker symbols) provide daily trends, so you can access quotes and stock data. Market Watch can retrieve up to 10 years of trading backlogs of intraday charts. The latest update enhances response time, charting, and the All Indices feature.



MyBackup Pro

Android

MyBackup Pro (\$4.99) is a mobile backup app that lets you offload your phone's data onto an SD (Secure Digital) card or the developer's (RerWare) secured servers. The list of phone features and content that MyBackup Pro can save for you is lengthy, which is helpful for anyone who tends to regularly misplace mobile phones. You'll be able to back up at least the following: applications, photos, contacts, the call log, browser bookmarks, text messages, settings, home screens, alarms, the dictionary, and playlists. If you choose to safeguard your device on RerWare's server and you want to access the phone's data on your PC via Web browser, visit the MyBackup Web Viewer: tinyurl.com/3pq6mjk. When you back up your smartphone data to the cloud for the

first time, you will be assigned a PIN and password so you can log in to the MyBackup Web Viewer. MyBackup Pro supports scheduled backups and all Android phone versions after 1.5.

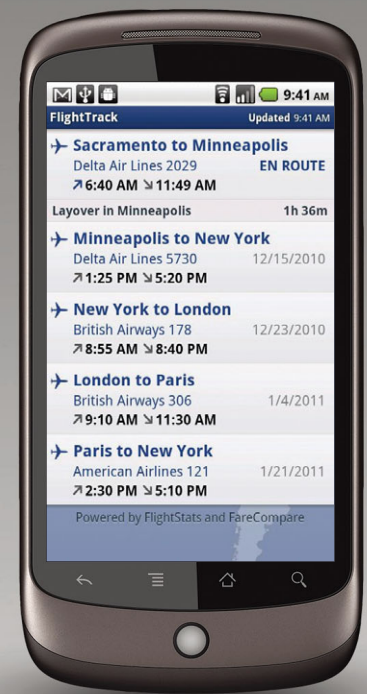


ezPDF Reader

Android

Some mobile PDF (Portable Document Format) readers are designed to do one thing: read PDFs. ezPDF Reader (\$1.99) is far more interactive than that. In fact, it's a multimedia PDF viewer that plays embedded audio and video (compatible with Android); reads PDFs with a built-in text-to-speech function; and includes annotation features, such as sticky notes, highlights, underlines, cross-outs, shapes, and freehand drawing. Scanned PDFs and JPEG2000 and JBIG2 compressions are supported and will fit on your Android's mobile screen—you can customize or move around on the document using Text Reflow, Fit To Text Column, and Change Reading Direction. Need to fill out a form or contract, but you're away from your laptop? Fill in the appropriate fields, sign it digitally, and send it as an email on your Android phone. Other extras include hyperlinking, bookmarks, zoom features, thumbnail scrolling, and scroll lock. ■

App Of The Month



FlightTrack

Android

As part of Mobiata's travel-specific app collection, FlightTrack (\$4.99) is, according to the company, "perfect for the casual traveler and those who want to track their friends and family." FlightTrack functions as a helpful travel companion that provides up-to-date cancellations, delays, and flight statuses. The app covers more than 4,000 airports around the globe and 1,400 airlines. You can enter flights in the app that are up to 11 months in advance and locate available alternative flights when necessary. On the Android platform, you will be notified about your flights via the Home screen widget. If you use SeatGuru to select a seat on the aircraft, FlightTrack displays it. You can also share your trip status via email, Facebook, Twitter, or a different third-party messaging application. For five more dollars, you can upgrade to FlightTrack Pro to receive more alerts and view terminal maps and airport weather.

Clean Up Your Mac

From time to time, a little maintenance is needed to keep your Mac uncluttered. Here are a few tips for putting your Mac in order.

Tidy Up

As with any maintenance or cleaning operation, the first thing you should do is simply tidy the place up a bit. Unless you're quite fastidious, you likely have a smattering of rarely used files and folders cluttering your desktop.

Find a folder to stash all those files in. By default, Apple gives you folders including Documents, Movies, Music, Pictures, and more. Most (if not all) of your files can go in one of those folders, or at least a sub-folder.

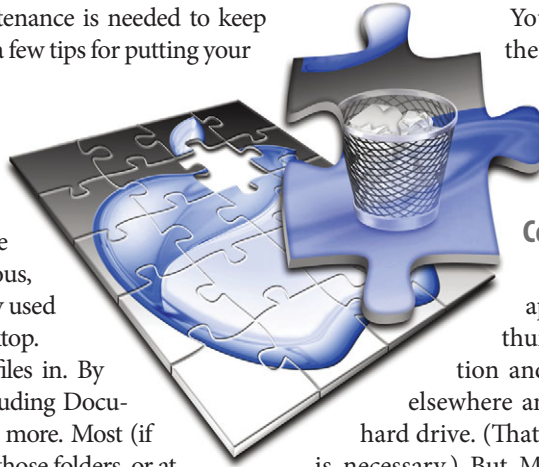
Which leads us to those stray folders on your desktop: You should put them in one of the folders in your Finder. It's easy to do—just drag and drop them to the appropriate spot.

If you need to make a new folder or sub-folder, just navigate to the appropriate location in Finder, click the gear icon at the top of the window, select New Folder, and enter a title for it.

If your Dock is full of applications and you want to remove a few for simplicity's sake, just click an icon (with the application closed) and drag it off the dock. It'll vanish in a puff of virtual smoke. This doesn't delete the application—it simply removes the icon from your Dock.

Delete What You Don't Need

While you're moving files and folders hither and yon, be sure you dump items you no longer need into the Trash. This goes for files, folders, and even applications. There are likely a few applications that you no longer need or want, and there's no reason to let them linger.



You can click and drag most items to the Trash to delete them, but some applications require a few additional steps—simply dragging the application's icon to the trash isn't always enough.

Completely Remove Applications

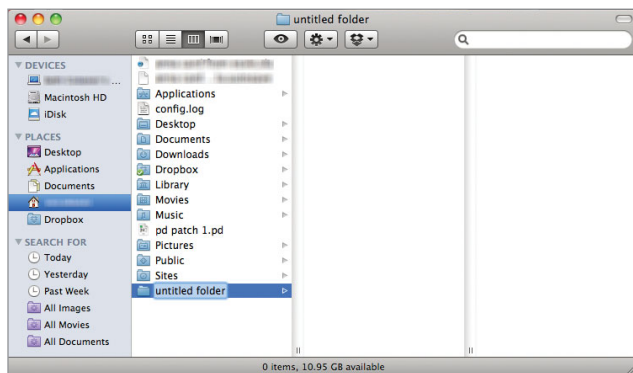
On a Windows Desktop, deleting an application's icon deletes only that tiny thumbnail image—not the actual application and associated folders, which are stored elsewhere and can take up a lot of space on your hard drive. (That's why the Add/Remove Programs tool is necessary.) But Mac applications are “bundled,” which means that the application icon is actually a dressed-up folder that contains most of the data associated with the application. (Pretty slick, huh?) Thus, if you drag the icon to the Trash, you're actually removing the application and most of the associated folders and files.

However, there are still some little files left behind. To get rid of all traces of an application, look in the Application Support and Preferences folders. To get there, click the username in the Places area of the Finder, click Library, and then click the Application Support or Preferences folders.

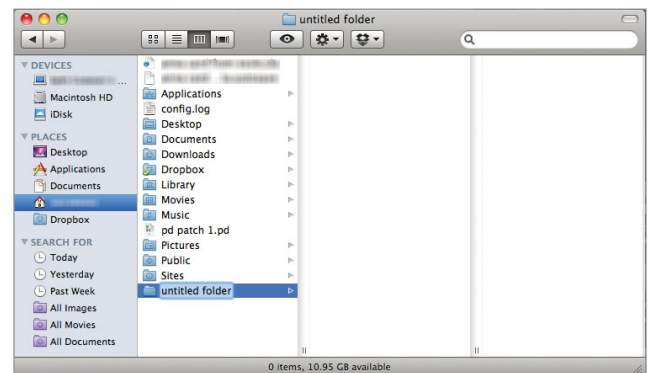
Under each of those folders in turn, scroll down until you see a folder with the name of the application you wish to completely delete. Click and drag the folders to the trash.

And remember, just as you have to drag a sack full of junk to the garbage can outside, when you're done deleting all those files, you need to empty the Trash. Click the Trash icon on the Dock, and when it opens, click the Empty button in the upper-right corner of the window. When prompted, click Empty Trash.

Then sit back, relax, and enjoy your freshly uncluttered Mac. ■



Creating new folders and sub-folders is an easy way to help organize your files that are otherwise floating around your desktop.



To completely get rid of an application and its associated files and folders, you may need to follow a lengthy file path.

Your Guide To New Technology

When you buy technology for your home or small office, a little research can go a long way.

That's why *Smart Computing* brings you news, reviews, and instructions for setting up the latest products each month. We keep you up-to-speed on computers, components, software, and the ever-growing world of online services. Our plain-English articles define unfamiliar, technology-related words so you can shop with confidence. What's more, *Smart Computing* shows you how to set up and use many of the products available today. A \$29 subscription to *Smart Computing* includes 12 print issues and access to the Digital Edition (including past issues online) for a year.



computers | components | software | online services | new products



Upgrade Without Losing Your Apps

Safely Transfer Apps & Music To Your New iPhone

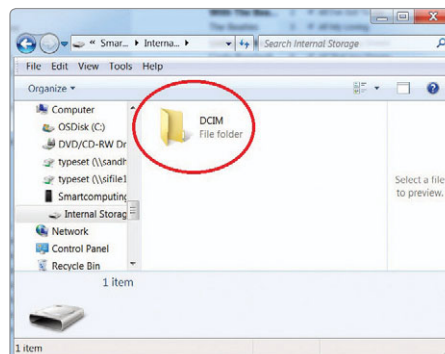
Apple has taken a few hits lately about the less-than-intuitive way that iPhone, iPad, and iPod users are expected to move files to and from their mobile devices. There's really no easy way to do that, as Apple hides the devices' file structures from users; unlike when looking at a computer (or, *ahem*, when connecting certain other manufacturers' mobile devices), connecting your Apple device to your computer does not give you access to the device's full file structure. Instead, absent third-party hacks or utilities, about all your computer can see of the phone, tablet, or media player is a folder full of images. If you wish to drag items *other* than photos to and from your device, Apple forces you to use iTunes, a woefully clunky, multi-step affair that has occasioned much grumbling, even amongst some long-time Apple fans.

This being the case, many readers are panic-stricken at the thought of purchasing a new iPhone or other device. If simply moving a PDF file, movie, or ebook over to the device seems so complicated, what terrible things might happen if you attempt to move your valuable apps and media from an old device to a new one? Sounds risky, at best. Maybe it's best to continue using your old steam-powered iPhone, rather than risk switching to the new one.



Relax. Apple Did It Right.

In spite of the seeming complexity of the undertaking, moving your old device's apps and media to your new device is essentially a simple three-step process.



Step 1: Update iTunes

Apple regularly updates iTunes, and it's always best to ensure that you're using the most up-to-date software, especially when going through the process we're about to describe. If it doesn't launch automatically when you plug in your phone, start iTunes; it should automatically check to see if updates are available. If there are updates, go ahead and download and install them before proceeding. (If iTunes doesn't check

Unlike with some manufacturers' devices, your computer cannot see the file structure of your iPad, iPod, or iPhone. All you're allowed to open is the DCIM folder containing the device's photos.

automatically for updates, you can initiate a manual check: Go to the Help menu and select Check For Updates.) The program is a pretty hefty piece of software, so be patient; downloading and installing the iTunes update can take a few minutes.

Step 2: Sync & Back Up

Next, sync and back up your old device. With iTunes running, connect the charge/sync cable to your computer, and connect the other end to your device. After a moment or two, your device will show up on the list on the left, under Devices. Select the device, right-click



Once your computer recognizes your device, iTunes will list it under Devices. Right-click it to see menu options relating to the device.

it, and click Sync—or, once you've selected the device, click the Sync button at the lower right of the iTunes window.

Once your phone has been synced, select and right-click your phone in the Devices list and select Back Up. Backing up your phone may take several minutes, especially if you have a large number of apps, movies, and other large files. (On the other hand, if you've recently backed up the device, the backup may proceed very quickly.) During the backup, iTunes will display the backup status.

Step 3: Restore

The goal of this (final) step is to replace all the apps and files on your new device with the files and apps backed up from your old device. (If your device is actually new, there probably are no apps and files to replace, but see the "Other Reasons To Restore" sidebar in this article.)

Having previously synced and backed up your old device, connect the new device to iTunes by plugging the USB charge/sync cable into the new iPhone, iPad, or iPod. Once it recognizes the new device (and sees

Other Reasons To Restore

The restoration process may also prove useful even if you're not moving to a different iPhone, iPad, or iPod. If your device is misbehaving (running very slowly, freezing, locking up, and so on), a restore may resolve those issues. Keep in mind that using Restore will reset all settings to factory condition. Be sure to sync and back up before restoring—otherwise you may lose any data or app updates that you've downloaded since your last backup. (Note that movie rentals will be lost completely and are not recoverable.)



Note that you actually have two restore options: We're using Restore From Backup to move your content over to the new device. The iTunes Restore button under its Version heading can also be used as part of a complete reset/restore option when dealing with a misbehaving device.

that the device has not previously been synced to this computer), iTunes will present two options: Restore From Backup or Set Up As New Phone (or other device). Because you wish to move all of your current apps and data over to the new phone, select Restore From Backup.

If you have synced more than one device to this computer, you will see a

drop-down list of backups from which to choose. Be sure to choose the correct backup. Click Restore.

Check Your Results & Go

The restoration can take several minutes, again depending on how much data is being transferred. Be patient. Do *not* disconnect your device from the computer during this process.

Once the restoration is complete, check to ensure that all of your apps, phone and contact data, media, and other files have been transferred to the new device. In our experience, everything moves over quite nicely using this process, including photos and other media. Some settings and most passwords, however, will need to be re-entered. (Movie rentals do not transfer and are not recoverable, so you'll have to write those off. Watch those rented flicks *before* you upgrade to the new device.)

That's all there is to it. Three quick steps, and you (and your new device) are on your way. ■

What About My Old Phone?

If you're wondering what to do with your old device now that you've transferred your apps and data to the new one, you have two options. First, you can set up your old iPhone to work like a Wi-Fi-enabled iPod touch—that is, exactly the way the iPhone worked before, but without a cell carrier. To do so, see the Apple Knowledge Base article at tinyurl.com/n5rpes.

The other option is to set up your old phone as a "new" device—that is, so that someone else can use it. This involves erasing all of the old data and settings, including the info on the phone's SIM card. For specific instructions, see the Apple Knowledge Base article at tinyurl.com/yfws84g.

In either case, remember that simply removing or erasing a phone's SIM card does not deactivate your cellular account. If you wish to do that, be sure to contact your carrier.

Fresh Fruit

Great Business Apps For Your iPad/iPod/iPhone



There's no shortage of impressive applications—some of them free—for Apple's popular family of mobile devices, and many of them are perfect for the home office worker or entrepreneur. Here are our favorite business-related mobile apps for the month. (Unless otherwise indicated, see the Apple App Store to purchase these.)

Tript

iPhone iPad

TripIt (free; \$49 per year for TripIt Pro) lets you quickly and easily organize your travel plans. No more frantic searches in your inbox for flight numbers or departure times: TripIt lets you access all your



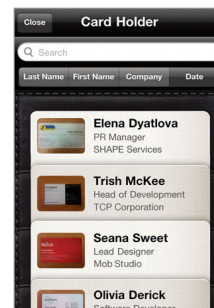
Tript

travel plans on your iPhone or iPad, in your calendar, or online. Once you've set up a free TripIt account, just forward your travel confirmations to plans@tripit.com and TripIt creates an itinerary, combining your travel plans with maps and driving directions, all of which can easily be shared with others. The free app's features are similar to those of the Pro version, but the latter eliminates advertisements and offers automatic notifications of flight delays and cancellations, and automatic sharing and tracking of airline reward points.

Business Card Reader

iPhone iPod touch iPad

Business Card Reader (\$4.99) . . . well, reads business cards. No big deal, these days, but this recently updated app does it very quickly, very easily, and very well. Use your camera-equipped Apple mobile device to quickly and almost flawlessly import contact information from a business card directly to your address book. (And you'll find that it's easy to edit the scanned data, on the rare occasions that proves necessary.) The app is integrated with LinkedIn, so maneuvering between the two is easy. Mobile workers will discover that the text scanning is fast and eerily accurate, recognizing business cards printed in many formats and in multiple



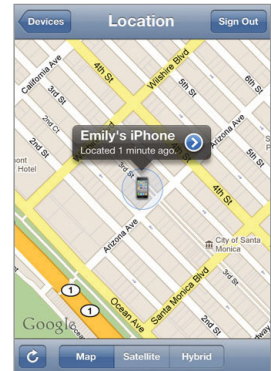
Business Card Reader

Noteworthy App Of The Month

Find My iPhone

iPhone iPad

Your mobile device is important to you, but what if your iPad or iPhone were lost or stolen? No worries. Find My iPhone (free) will help you track down a lost or stolen Apple device, and the app is already on the device. If you have an iPad, iPhone 4, or 4th-generation iPod touch, you can activate Find My iPhone by going to Settings and selecting Mail, Contacts, Calendars. Once you've activated it on that device, you can also activate it on your other iOS 4.2+ devices, including the iPhone 3G and 3GS. If you lose your device, launch the Find My iPhone app on another iOS device (or visit the MobileMe Web site), launch it, and sign in. You'll see your device's location on a map: Choose to have it display a message or play a sound, remotely lock the device, or permanently delete all of your data.



languages, including English, French, German, and Spanish. Anyone who regularly networks and collects contact info will love this app. At \$5, it's a great investment that will quickly pay for itself.

Skype

iPhone iPod touch iPad

The long-awaited Skype for iPad (free) is here. Now you can call, video call (with camera-equipped devices), and instant message anyone else with Skype for your iPhone, iPod touch, or iPad. Call and IM other Skype users free, or call or IM non-users at low national or international rates using a 3G or Wi-Fi connection. Skype now offers near-CD quality sound for Skype-to-Skype calls on iPhone 4, iPhone 3GS, iPad, and 2nd- and 3rd-generation iPod touch. With the increasing prevalence of camera-equipped Apple devices, Skype-based family video chats have become common, but Skype is also being used more and more often in business environments. Business users who wish to videoconference can initiate

and share a video call with three or more people anywhere in the world with Skype Premium (\$107.88 per year).

Wacom Bamboo Paper

iPad

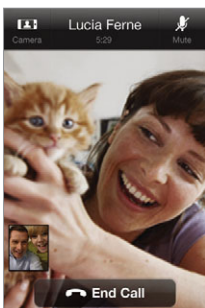
Graphics tablet maker Wacom has released Wacom Bamboo Paper (free at press time, although that may change), a writing and drawing app for creating virtual notebooks on your iPad, letting you share your ideas visually with handwritten notes, sketches, or doodles. Optimized for the company's beautiful (and beautifully functional) Bamboo Stylus, it works with any capacitive stylus—or with no stylus at all—and turns your iPad into a paperless communications tool for use at school, work, and home. Easily scan your notebook by browsing through thumbnail images of your pages, share your ideas by emailing individual pages or entire notebooks, or connect your iPad to a projector to show off your sketches and ideas to others at meetings and brainstorm sessions. Word is that the company may begin charging for Wacom Bamboo Paper, so

get it while it's free. (And check out the stylus at wacom.com.)

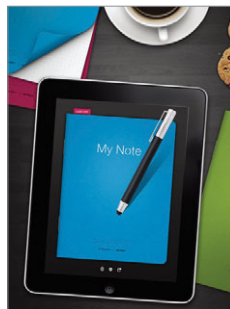
FileXChange For iPad

iPad

FileXChange (\$4.99) solves a problem that really shouldn't have been a problem in the first place: Apple—which usually creates beautifully engineered and easy-to-use products—has made the process of moving files from your PC to your iPad (or vice versa) remarkably clunky. On the plus side, several other companies have stepped forward with apps that help you get around the problem, and FileXChange is a great example of that entrepreneurial spirit. Essentially a simple file manager, you can use the app to quickly and easily move files back and forth between the iPad and any number of devices—including other iOS 4 devices. The app can open most file types, including images, movies, PDFs, and Microsoft Office docs. Just download the iPad app, click the Wi-Fi icon, and enter an IP address in your browser to establish a connection between your PC and your iPad. Simple. Convenient. So why didn't Apple think of it? ■



Skype



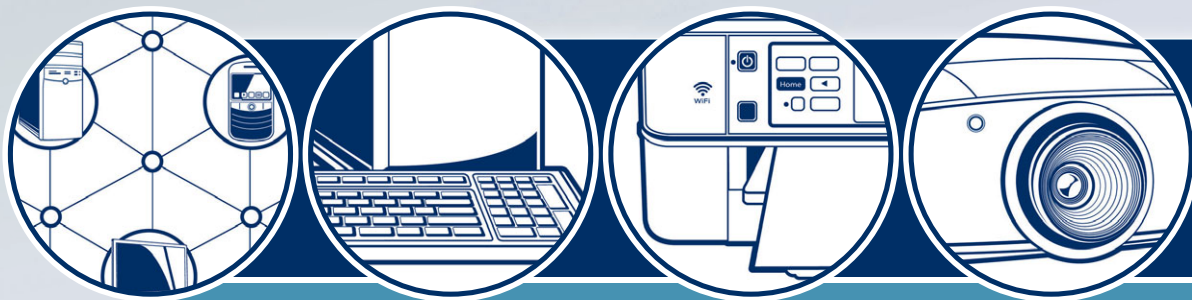
Wacom
Bamboo Paper



FileXChange
For iPad

TECHNOLOGY TROUBLE SHOOTING GUIDE:

For Small & Home Offices



TROUBLESHOOT YOUR:

- 44 Network
- 47 Computer
- 50 Printer
- 53 Projector

Here are two things true of many home and small offices:

They often operate under a budget that leaves little room for unforeseen expenditures, and time is always of the essence, as business owners often juggle many time-consuming hats. A common role includes making certain the hardware and software that the business relies on remains operational. Thus, when a computer-related problem pops up, it's not uncommon that the owner has to pit budget constraints against time constraints.

Say, for example, your business' most valued client calls late Friday afternoon requesting you create a proposal for a new venture he wants to see first thing Monday morning via video conference call. You agree, of course, only to discover Saturday morning while testing your headset and Web camera with a friend's help that you can hear him but he can't hear you. On one hand, you suspect you can solve the problem but it might require exhausting precious hours you had planned devoting to creating the proposal. On the other hand, sinking money into hiring professional troubleshooting would hurt nearly as bad. What you are certain of is that you have to get the proposal finished and your equipment functioning by Monday morning. What to do?

Smart Computing To The Rescue

One very good option for facing down such dilemmas is turning to the various resources that *Smart Computing* offers, including the troubleshooting guides that follow in this section. In addition to providing information and steps that can help determine if fixing the problem quickly yourself is possible, the guides can conversely help determine if actually making a tech support call is worth the monetary investment and is the most prudent option in order to save time and reduce potential frustration.

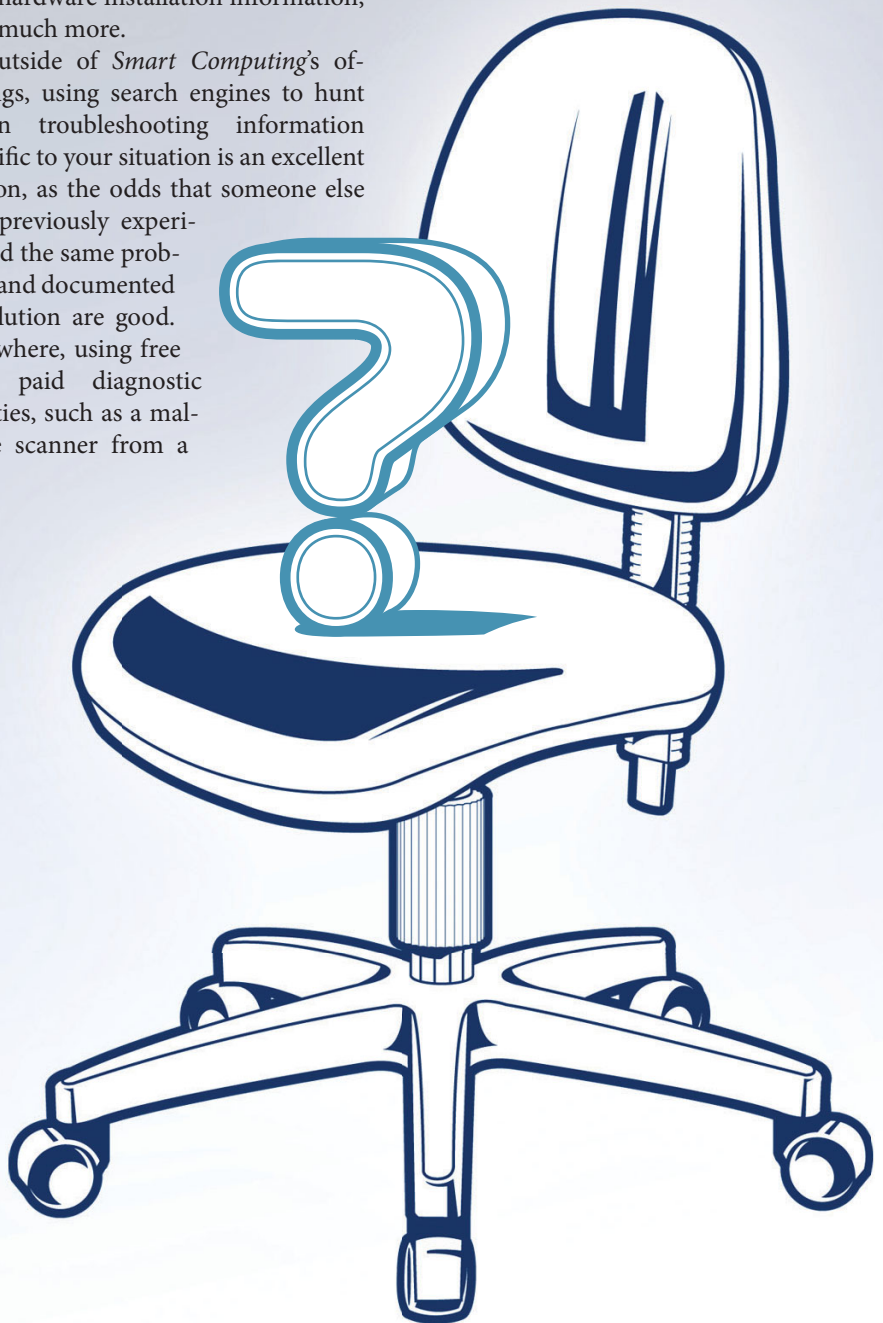
Providing both general and specific troubleshooting strategies, the guides that follow specifically cover network (page 44), computer (page 47), printer (page 50), and projector (page 53) troubleshooting issues. Beyond detailing typical symptoms related to each of these areas and including the steps involved for troubleshooting these symptoms, each guide contains multiple graphics (accompanied by descriptive captions) depicting the troubleshooting issue at hand.

In addition to the guides presented here, *Smart Computing* has similar guides available via its online *Smart Computing* Tech Support Center

(www.smartcomputing.com/techsupport) covering troubleshooting issues for RAM, Web cams, mice, keyboard, operating systems, motherboards, productivity software, Web browsers, graphics cards, and numerous other hardware and software topics. Beyond troubleshooting information, the Tech Support Center also contains information and resources concerning specific error messages, data recovery, software and hardware installation information, and much more.

Outside of *Smart Computing's* offerings, using search engines to hunt down troubleshooting information specific to your situation is an excellent option, as the odds that someone else has previously experienced the same problem and documented a solution are good. Elsewhere, using free and paid diagnostic utilities, such as a malware scanner from a

security software maker, can help identify and rectify certain problems. Finally, visiting the Web site of the manufacturer of your troubled component will nearly always lead to FAQs; tutorials; error message and solution databases; possible firmware, software, and driver updates; user forums; user manuals; and live email, phone, and chat options (though possibly at a fee). ■



TROUBLESHOOTING NETWORK

YOUR

Get Reconnected



Network access is more important than ever today. For example, cloud computing has made it possible to store our most important emails, documents, images, and other files on a server that we can access anywhere with Internet access. And some applications no longer include installation discs, because you're expected to be able to download the program from the company's Web site.

As such, it can be a real pain when your network is down, slow, or unreliable.

General Troubleshooting

Two of the most common failure points with networks are your router and the modem. Fortunately, the router is one of the easiest computing devices to fix. Simply turn the router off and turn it back on. This is called power cycling. Often, power cycling the router will allow it to overcome bugs that have caused

it to become unresponsive. For example, the router may have had an issue where it could no longer renew its IP address or release new IP addresses for the computers on your network. Power cycling is similar to restarting your computer, in that the software inside the router is restored to a known good state. Similarly, you may need to power cycle the cable, DSL (Digital Subscriber Line), or satellite modem connected to your router to reset the device's software.

If power cycling the router or modem didn't help, your network adapter is the next component to troubleshoot. You can use the Network Diagnostic utility built into Windows to help find the problem. The Microsoft utility can automatically enable disabled network adapters or request that the router renew your computer's IP address. To run Network Diagnostic in Windows 7, click the Start button, select Control Panel, choose Network And Internet, and select Network And Sharing Center. Under View Your Active Networks, select the link next to Connections and click the Diagnose button. Windows will run a few tests and may attempt to reset your network adapter.

If the Network Diagnostic doesn't find anything, it's a good idea to try and reboot your computer. With a wired connection, you'll also want to check that the Ethernet cable running between your computer and router is firmly connected on both ends. With a wireless connection that uses a USB adapter or PC card, you should also try to remove the wireless adapter and reinsert it to see if it was loose.

Wired Troubles

Problem: My network connection drops intermittently.

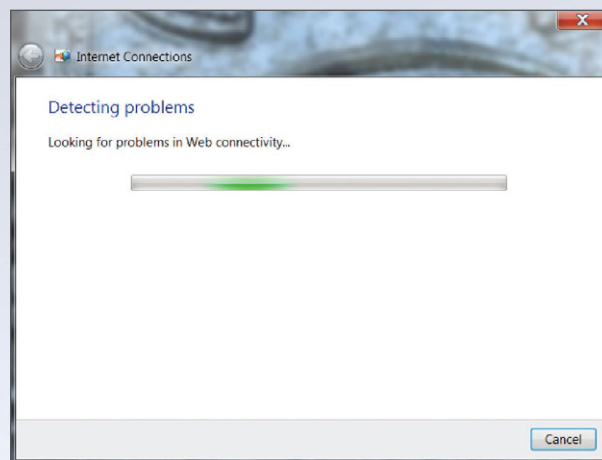
Solution: There are a variety of reasons you could experience this problem, but one of the more common causes is a problem with the driver for your wired network adapter. With most computers, the wired network port is built into the motherboard, rather than an add-on card, so the manufacturer of your computer or motherboard will provide downloadable drivers for the network adapter. It's also possible that there's a new driver available that's been released to fix the problem you're currently experiencing. If your computer doesn't include a name or model number on the exterior, you can figure out who made the motherboard by using CPU-Z (free; www.cpuid.com) from CPUID.

On the CPU-Z Web site, click the download link under Download Latest Release and then click the Download Now button. When it finishes downloading,



If your network seems to be down, try unplugging the router; after a few seconds, plug it back in again.

click the Run button and open the CPU-Z program. It will quickly scan the computer and tell you about the specific hardware on your computer. To find out the brand and model number of the motherboard, click the Mainboard tab and look in the Manufacturer and Model fields. Write down the motherboard manufacturer and visit the vendor's Web site. For example, MSI's Web site (us.msi.com) features a



Downloads tab, which will link you to a page where you can enter MSI products to quickly find drivers, BIOS updates, firmware, and patches. MSI also offers a Live Update Online utility that will scan your PC for drivers and BIOS updates, so you can always keep them up-to-date.

You'll also want to check the physical network connections to see if everything is still securely connected. A connection that's loose may explain why the connection drops intermittently. It's possible that the cable may have a cut or kink that causes a fault in the connection. Try

replacing the Ethernet cable with a new one, or one that you know works fine.

Problem: My connection is occasionally slow.

Solution: One of the most common reasons for a slow connection is that you are sharing the Internet service with others who are using up the bandwidth. For example, video streaming or downloading large files uses a lot more bandwidth than browsing the Internet. As such, you may notice a drop in Web speed when others in your household or office are using up the available bandwidth. If you notice that your Web experience slows to a crawl when others are online, you may need to talk with your ISP (Internet service provider) about getting a faster service.

If you use cable Internet, it may also be possible that your connection is affected by the number of people online in your area. Cable Internet is sent over the same line as cable TV, and you may share the line with a large number of other people. When many people in your area are

Windows Network Diagnostics tool will help to resolve problems with your network adapter.

online or watching TV, you may experience a drop in your connection speed.

Similarly, DSL users may see a slight drop in speed when other devices connected to your landline, such as a telephone or fax machine, are in use.

Problem: The networking icon in the Notification Area of Windows indicates I have local network access, but no Internet access.

Solution: This means that Windows can see your router and access shared files from other computers on your network, but it cannot access the Internet through

the router. To fix the problem, power cycle the router by turning it off and back on.

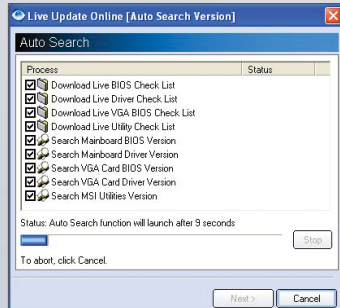
Wireless Problems

Problem: My wireless connection occasionally disconnects and is generally weak.

Solution: Assuming that you're trying to connect to the Wi-Fi signal within a reasonable distance (most routers support a range of up to 150 feet), it's likely that the wireless router is experiencing interference in the signal. Common interference-causing devices include microwaves, Bluetooth devices, baby monitors, landline phones, and mobile phones. Generally, the interference will be worse if the device causing the problem is close to the router. Try moving the router to a different location where it will be less affected by the signals.

The radio waves from your router also become weaker the further they travel. And depending on the types of materials in your building, you may be forced to move the router to a location where the signal has a more direct path to you. We've found that drywall is much easier for Wi-Fi signals to pass through than metal, mirrors, concrete, and brick. For example, we had trouble when we moved our PC to a location near air vents, because the metal duct work reflected signals more than the dry-wall on the other side of the room.

If the signal seems weak no matter where you locate the router or PC, you may want to consider investing in a powerline network, which is a technology that uses the power lines in your home to transfer network data. For example, Trendnet recently released a 500Mbps Powerline AV Adapter Kit (\$164.99; www.trendnet.com) that provides your PC with consistent, wired Ethernet speeds. With a powerline networking kit, you'll



MSI's Live Update Online makes it easy to update the drivers, including the network drivers, for computers with MSI components.

receive two adapters: one that connects to the router via Ethernet cable, and one that connects to your PC via Ethernet cable. Once set up, you'll enjoy high-speed Internet without the inconvenience of stringing cable through walls or around corners.

Problem: My wireless adapter sees a number of local networks, but not the one I wish to connect to.

Solution: For security, many businesses and home owners configure their router so that the network does not broadcast an SSID (Service Set Identifier), which is the network name that appears when your device looks for networks. If you know the network exists and you're not finding it, you may need to speak to someone about providing you the SSID and security code. For example, you'd want to talk with the IT department about wirelessly connecting in your office. Once you have the SSID and password, you can manually connect to the wireless network.

It's also possible that the network may be broadcasting using a standard not

supported by your PC. Nearly all new routers broadcast using the 802.11n standard, which is backward compatible with 802.11g and 802.11b devices. However, an 802.11n router is only backward compatible with older standards if the router is configured to work in Mixed Mode (a setting where the router supports

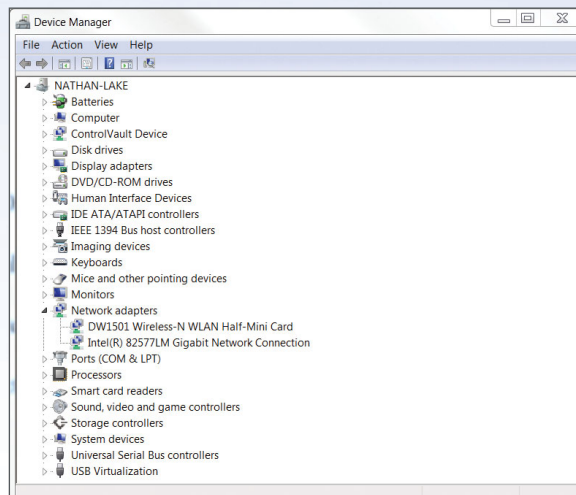


Powerline network adapters, such as this Trendnet 500Mbps Powerline AV Adapter Kit, use the power lines of your house to send data and Internet access to your PC.

connections from any 802.11b, 802.11g, or 802.11n devices).

Problem: I can't see any networks at all, and when I click the Connect To A Network link, a message says that Windows Cannot Find Any Networks.

Solution: It would seem that there's a problem with your wireless adapter. You can use Device Manager in Windows to help spot the problem. To do so in Windows 7, click the Start button, right-click Computer, and select Properties. Click Device Manager (in the upper-left corner) and double-click Network Adapters, which will display the available network connections on your computer. Typically, the wireless adapter will have the word 'wireless' or a standard, such as '802.11n', as its title in Device Manager. Double-click the wireless adapter and look in the Device Status section of the general tab. Any problems will generally be listed with an error code, which you can look up at Microsoft Support (support.microsoft.com). You may also need to reinstall the existing driver (or install a new driver) for your wireless adapter. ■



Look under the Network Adapter section of Device Manager to see if your adapters are experiencing any problems.

TROUBLESHOOTING YOUR COMPUTER

When You'd Rather Shoot It



It's not really going out on a limb to say that if you run a business, you have one or more computers. And if you have computers, you occasionally have problems.

Desktops and notebooks give us guff sometimes. Connections get disconnected. Software goes south. Hardware goes "poof," and as IT guys like to joke, it doesn't work after you let the smoke out.

Troubleshooting PCs is obviously a huge topic. We'll cover a lot of ground with the following suggestions, so bear with us if we can't provide step-by-step instructions for every fix. We'll use Windows 7 as our example OS in this article, but many of the tips also apply

to earlier versions and computers with other OSes, too.

General Solutions

No matter how silly it sounds, always check the obvious stuff when a PC problem crops up. Yes, we're talking about making sure that your computer is turned on, that it's plugged in, all cables are still attached, and so on. You've got a business to run; you don't have time to waste running down increasingly unlikely causes for a dead notebook when its battery isn't fully seated.

Restart. It's true: Restarting a Windows computer really can correct a variety of ills. For maximum effect, shut down the

misbehaving PC and then unplug its power cord for 30 seconds or so. Plug it back in, turn it back on, and marvel.

Error messages. Windows and many apps have come a long way in giving you error messages you can easily understand. Still, it's pretty typical to see badly written or numeric error codes that can leave you scratching your head. Jot these down and use your favorite search engine, such as Google, to look them up online. If you don't find anything relevant in the first page or two of results, try a different search engine.

Update it. It's the norm for manufacturers to release updates for their computer products. Downloadable patches

can correct issues, add features, improve compatibility, and close security holes. Perhaps you can fix your PC problem with an update to the relevant device driver or firmware, application (although upgrades

vice in question, such as Display Adapters. Double-click the device, such as ATI Mobility Radeon X1300. Click the Driver tab, and then click Roll Back Driver.

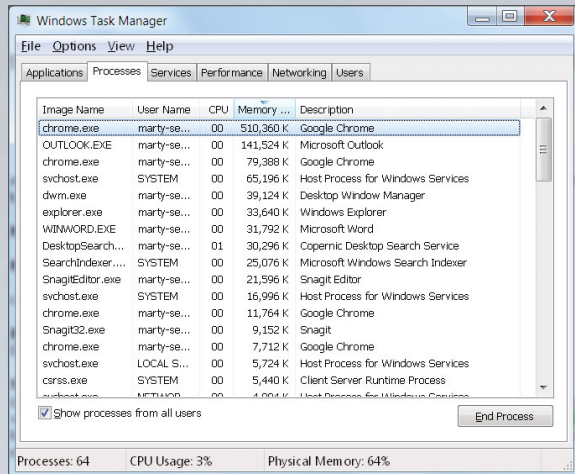
You can even uninstall Windows Updates that cause problems. Click Start, Control Panel, and Programs And Features. Click View Installed Updates, and then select the update and click Uninstall. Of course, we don't recommend that you remove any security-related updates unless you have no other option.

Reset. Occasionally, parts may be physically connected to each other without a good electrical connection. A worn contact, a speck of dirt, or a teensy misalignment is all it takes to cause an open circuit, and that means a device won't work.

With the PC off, you can disconnect and reconnect items such as external and internal cables, memory modules, and expansion cards. Sometimes reseating an item returns it to active duty. Work carefully, and be sure to dispel static electricity by touching something metal before you touch your computer.

Specific Problems

Here's a passel of advice for common mishaps in the Windows world.



When your PC abruptly slows down, Windows' Task Manager may tell you why. Notice how our Chrome browser has absorbed more than half a gigabyte of RAM, triggering lots of data traffic to the swap file on our hard drive.

to a newer major version number usually aren't free), motherboard BIOS (basic input/output system), and so on.

Be sure to download the correct update for your device model/version and your OS, and follow the manufacturer's installation procedure exactly. This is especially important for firmware and BIOS updates, as these can brick a device if installed improperly. Always back up an SSD or hard drive's data before you flash its firmware.

Do over. As you may know, System Restore can roll your Windows system back in time, so to speak. If you have a software problem and you suspect you know what caused it (such as a new program installation or a settings change), System Restore may let you return your PC to a previous state. Press PAUSE-WIN (the Windows logo key), click System Protection, and then click System Restore.

On a finer scale, you can reverse smaller changes such as a bad driver upgrade without using System Restore's broad brush. Press PAUSE-WIN, click Device Manager, and double-click the category of the de-

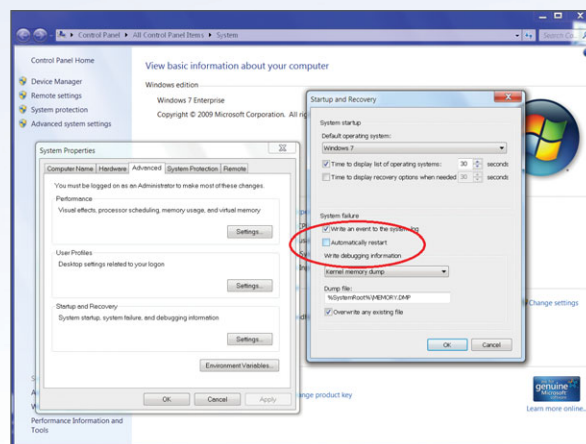
Freezes. When an application hangs, or freezes, it's best to give it a few minutes to recover, especially if your hard drive activity light is lit or blinking. If the app remains frozen, press CTRL-SHIFT-ESC to launch the Task Manager. In the Applications tab, select the program and click End Task. No joy? Click the Processes tab, select the application's main process (be careful to pick the right ones—check ProcessLibrary.com for help), and click End Process.

If your computer hangs soon after you connect a removable device to it, such as a USB flash drive or an external hard drive, disconnecting the device may help. In the System Tray/Notification Area, click the Safely Remove Hardware And Eject Media icon, then the device, if it's present. If it isn't listed, go ahead and unplug the device.

Some hangs can only be fixed by shutting down the computer and restarting it. Click Start and Shut Down. Give Windows time to end every process; if it asks whether it should kill a stubborn application that's unresponsive, let it. If the normal shutdown method doesn't work, try pressing CTRL-ALT-DELETE and then clicking the red Shut Down icon. These OS-based shutdown procedures are less likely to lose data than the next options, which involve a bit of tough love.

If your system is completely locked up, meaning the drive activity light is off and you can't even move the mouse pointer, press and hold your PC's power button for five or more seconds. (If you simply press and release the power button, many computers will enter Sleep or Hibernate mode,

or try to perform a Windows shutdown.) If the power button doesn't do anything, you can unplug the computer's AC power cord. On a desktop, you may have the alternative



It's hard to read a blue screen error when your PC reboots a few seconds later. Uncheck the Automatically Restart box in the Startup And Recovery options.

of flipping the switch on the rear of the power supply. For a laptop, you should also remove its battery for a minute or so.

No power. You try to turn on your computer, but nothing happens. Check the power cable connections from the back of the PC all the way to the wall outlet, including the switch on the power strip or surge protector. Sometimes trying a different outlet helps.

Speaking of surge protection, if your power strip's reset button has been tripped, a lightning strike or other electrical event may have caused a spike, sag, or surge on the line. Determine the cause, so you can take action if there's a fault in your building's wiring or too much load on the circuit, such as from a space heater, shop vacuum, or welder. Never re-use a tripped surge protector, as its protection circuit is designed to take damage so your electronic equipment doesn't. Buy a new one.

If your PC won't start right after you installed a new drive or graphics card, and all power cables are hooked up, you might need a new power supply with more wattage. A partial lack of power—the case fans work, but the rest of the PC doesn't—may indicate a fried motherboard or dead processor.

Blue screen errors. As with other cryptic error messages, a Web search is your best bet. Write down the STOP number, such as 0x000000F4, and any text regarding the type of error, such as Driver Power State Failure.

If your PC reboots before you can catch the blue screen information, turn off automatic restarting in case it happens again. Press PAUSE-WIN. Click Advanced System Settings, the Advanced tab, and the Settings button under Startup And Recovery. Uncheck Automatically Restart and click OK.

Suddenly slow performance. Launch the Task Manager by pressing CTRL-SHIFT-ESC. Click the Performance tab to see whether your CPU is busy or your RAM (and thus your swap file) is getting a lot of use (more than 1.5GB).

If either or both of these are happening, click the Processes tab. Look for processes



1.

1. To turn off a completely unresponsive PC, press and hold down its Power button for five seconds or so.

2. Reseating means to unplug and reattach a card, memory module, or cable. A memory problem might prompt you to reseat the RAM or move it to different slots.



2.

3. A loose video cable can mean a black screen and an orange "no video" light on your monitor. Tighten the connector's screws to keep the heavy cable in place.



that have high numbers in the CPU or Memory column. If the Description column or process name indicates a particular application, shut the app down, restart it, and/or update it.

For chronically slow performance, defragment your hard drive and make sure it has at least a few GB of free space. Consider upgrading with an SSD, a hybrid drive, and/or more RAM.

An Ounce Of Prevention

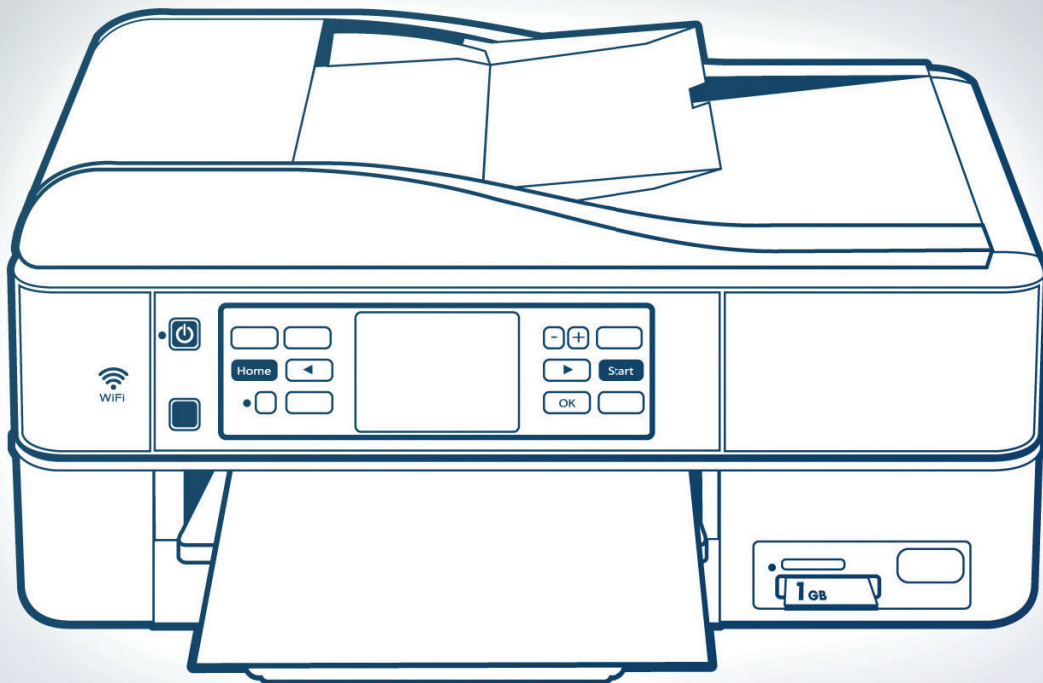
PC trouble is no fun. And in a business, lost productivity is lost revenue.

That's why it's best to try and avoid problems by tucking cables away from walkways, keeping your antivirus current, and enabling WPA2 encryption on your Wi-Fi network. Ensure that every laptop and desktop has good ventilation and clean fan grilles.

Finally, try to make only one change to your PC at a time. That way, a problematic new device, update, or application will be easier to identify. ■

TROUBLESHOOTING YOUR PRINTER

Start The Presses



Tablets, ereaders, and other mobile devices are changing the way we do business. But are the headlines right? Is today's office finally on the cusp of going paperless?

Not really, at least from the evidence we've seen. When a customer stops by for a written estimate, they want to leave with a hard copy in their hands. When you meet with potential clients, you'll need handouts for everyone at

the table. And don't forget all the miscellaneous printouts, receipts, and invoices of a typical business day.

In a small or home office, it's a pretty big deal when the printer goes down. Let's take a look at some ways to head off trouble at the pass.

General Tips

Preventive maintenance is a way to schedule your printer's downtime when it's convenient. It's certainly better from

a business point of view than letting the printer go until it malfunctions, which will never happen at a good time.

Cleaning. One of the primary ways to keep your printer operational is to keep it clean. It's a device that physically moves pieces of paper through itself. If it's an inkjet, it physically moves print heads back and forth as it applies ink to a page.

If you allow paper dust and scraps to accumulate in the paper pathways of the printer, performance will suffer in a variety of ways. Its rollers won't grip the paper as well as they should, which can lead to printing errors and paper jams. Paper dust can absorb lubricants, leading to premature wear of moving parts. And of course, debris can obstruct the application of ink or toner, resulting in spotty prints.

PREVENTIVE MAINTENANCE is a way to schedule your printer's downtime when it's convenient.

Follow the manufacturer's directions for cleaning out your printer every so often, depending on how much your office uses it. For instance, it might have access panels to let you vacuum or blow out dust. Also, the vendor may recommend cleaning the rollers now and again with acetone or a damp cloth.

Ventilation. Laser printers, all-in-one MFPs (multifunction printers with fax, copy, and scan functions), and certain inkjets can generate significant amounts of heat, especially if they see a lot of use. In fact, a laser contains a fuser whose job it is to melt the particles of toner onto each page. If heat can't escape through the printer's vents, it can cause print

powering down the printer. Wait a minute before you turn it back on.

Drivers. Before you upgrade the OSes on your office PCs, make sure you can get compatible drivers for your printer. When Microsoft, Apple, and others release new OSes, printer manufacturers may only develop new drivers for their more recent models. A printer that is four or more years old may still work perfectly fine, but if the new OS doesn't support it, you may need to connect the printer to a PC with an older version.

Speaking of drivers, uninstalling and reinstalling a printer has helped us fix problems such as print jobs that never actually print. If you want to do this,

blocking the ink/toner from reaching the page. Check the levels of ink/toner in each cartridge; most recent printers will let you do so in their settings. Note that with some toner cartridges, you can get some more pages out of them by tilting them slowly from side to side a few times, then reinstalling them.

If there's ink/toner left in all cartridges, enter the printer settings. Look for a Clean Print Head function or similar, and start it.

I'm getting streaks or blotches on my prints. This is another job for the head-cleaning feature mentioned above. If it happens frequently with an inkjet, you may need to replace one or more ink tanks or the print head itself, if applicable. Ink cartridges have a shelf life, so you should try to use them by the date stamped on their packaging.

For a laser printer, remove each toner cartridge and wipe it with a slightly damp paper towel. Clean out as much of the printer's interior as you can reach. When each toner cartridge is dry, reinstall it.

My photos and graphics have incorrect colors. In some printers, it's possible to install its ink tanks or toner cartridges in the wrong slots. If you need to move some carts around, print a sample image or two afterward. This should clean out any remaining incorrect color.

Paper keeps jamming in the printer. Check the adjustable arms in the paper input tray to make sure they fit the page edges; this helps keep sheets of paper from feeding crookedly and getting off track. If you can access any of the printer's feed rollers, clean them according to the manufacturer's directions.

Even in a down economy, don't buy low-quality paper. Cheap pages may leave paper dust behind. Also, keep partial reams of blank paper wrapped in their original packages to keep out humidity, dirt, and other contaminants that can affect the paper's feeding characteristics.

My inkjet prints are easy to smear. This issue has to do with the compatibility between the ink and the paper. A good match yields pages that dry quickly after



errors or even damage to the printer's electronics. Make sure there are several inches of unobstructed space on all sides of your office printer.

Cabling. Sometimes, it's the simple things. Ensure that your printer's data and power cables are plugged in correctly. Also, keep the cords out of high-traffic areas.

Cycle the power. Quirky behavior can sometimes be corrected by

always download the latest driver from the manufacturer first.

Specific Fixes

Although step-by-step procedures will vary by printer model, we can at least give you some guidance on common printer misbehaviors.

My printed images are missing colors. Either you've run out of ink or toner in a particular color, or there's something

printing and resist smearing even when wet. Manufacturers recommend their own brands of ink and paper for these reasons (as well as to sell more products, of course). In our limited testing of various ink/paper combos, we found that

encryption, you may have to update its firmware or remove the punctuation from the passphrase in your router's settings (not to mention the rest of the wireless devices on the network).

And even if the printer does support special characters,

Once we propagated the change to the printer and our other devices, we had a working Wi-Fi link.

Advanced Topics

For esoteric dilemmas with more upscale business printers, don't hesitate



prints made with the ink and paper a manufacturer recommended were invariably good-looking, smearproof, and scratchproof.

Network Printers

Recent networkable printers are typically easy to set up using a wired Ethernet connection to a router or switch, assuming you follow the manufacturer's installation and setup instructions. That said, you might have the best luck if you set up the printer using a USB-connected laptop, and then hook it up to the network.

If the printer is an all-in-one MFP, be extra careful to put the cables in the correct ports. For example, we've seen RJ-9 telephone/fax/dial-up modem cables plugged into RJ-45 Ethernet ports, and no, they won't work that way.

Many units now have built-in wireless capabilities, which let you place your printer where it's needed without worrying about routing a cable to it. One problem with a Wi-Fi printer connection is the need for an encryption passphrase that's strong, but also supported by every device on the WLAN. For instance, say your WPA2 passphrase includes letters, numbers, and punctuation marks. If your printer doesn't let you type in special characters when you're setting up its wireless



3. If it ain't broke, why fix it? You can continue to "leverage mature assets," such as an old parallel port printer, even if your new PC doesn't have this old-school port. Parallel port adapters start at under \$10 online.

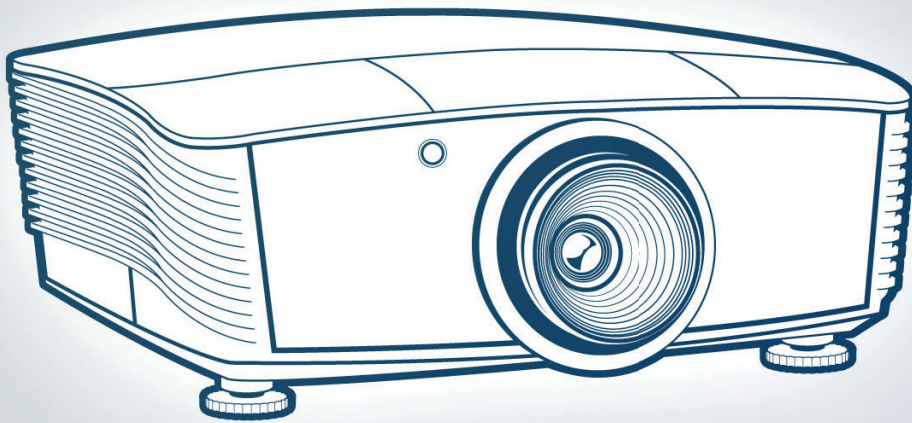
there may be a limitation or two. For instance, we found that a recent MFP wouldn't accept a passphrase with spaces at the end of it—the printer would simply ignore the spaces. We overcame the hurdle by changing the passphrase in our router's settings by adding a letter after the spaces.



to contact the manufacturer's support team. They may be able to help you with problems such as recovering your walk-up printing password or the best way to securely erase the printer's hard drive before you dispose of it. ■

TROUBLESHOOTING YOUR PROJECTOR

Quick Fixes For Picture Problems



The last thing you want to do before a meeting is troubleshoot projector problems. We'll provide you with some quick fixes to help you get your presentation up and running.

General Troubleshooting

Although you can experience a variety of picture problems, such as a scrolling or out-of-focus screen, the most disruptive projector issue is a complete lack of picture, so we'll address that problem first. If no image appears on-screen, you'll need to examine all of the cable and power connections on your projector and connected device. For example, it's a good idea to unplug and securely reconnect the video cable running from your computer to the projector. (Make sure you reconnect both ends.) A good rule of thumb for connecting a large or heavy cable, such as some thick HDMI cables, is to fasten the cable to

the projector by attaching a cable tie to a cable holder on the projector.

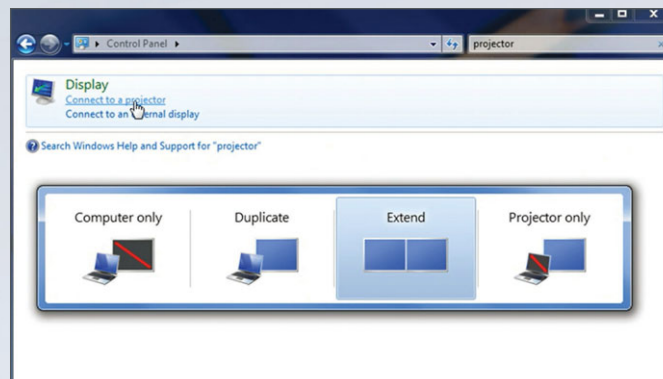
You'll also want to ensure that both the computer and projector are turned on. Note that you'll typically need to wait 30 seconds for the projector to

press the Power button on the projector's remote to wake it from its standby state. Next, use the remote for the projector to select the image source that corresponds to where you attached the video cable from your computer.

If a picture still doesn't appear, move over to the computer (or other device you've connected) and make sure that it's configured to send signals to the projector. For instance, most notebooks let you use a keyboard shortcut, such as FN-F8, to quickly switch the video output to an external display. If you're connecting the projector to a desktop computer (or if your notebook doesn't offer a keyboard shortcut), keep in mind that Windows 7 offers a Connect To A Projector option. Click the Start button, select

Control Panel, and select Appearance And Personalization.

Under the Display section, click the Connect To A Projector link, which brings up a window with options for Disconnect



The Connect To A Projector feature of Windows 7 makes it easy to configure your notebook to output video to a projector.

warm up before a picture appears. In some cases, the projector may have gone into a standby or sleep mode, so the power light may indicate that the projector is on but you'll still need to

Projector, Duplicate, Extend, and Projector Only. The Duplicate option makes it so that the projector displays the same screen you see on your laptop. The Extend option creates a new Desktop area that serves as an extension of your Windows Desktop. With Projector Only, Windows turns off the display on your notebook and you are only able to see your Desktop on the projector screen. If you're having trouble generating a signal from a notebook to the projector, it's recommended that you use the Projector Only setting.

Problem: The projector shuts off, suddenly becomes dark, or provides a temperature warning.

Solution: These symptoms are all signs that the projector is overheating. Nearly all projectors have internal monitoring capabilities and automatically shut down when they become too hot. Optoma's TX762 (\$999.99; www.optoma.com) also includes a Temp-LED that turns on when it overheats. The Temp-LED will flash if the fan fails on the TX762 projector. NEC's NP-P420X (\$1,999; www.necdisplay.com) will automatically go into ECOMode, where the brightness of the bulb is significantly reduced, when the internal temperature of the projector is too hot.

When you experience one of the overheating issues, it's best to shut down the projector and let it cool down for at least 10 minutes. One of the keys to keeping a projector cool is keeping free space around and under the projector for proper ventilation. If any of the vents are blocked, we recommend you move the object to a place that won't affect the airflow around the projector. A clogged dust filter is another possible overheating cause. The dust filter is designed to keep debris from reaching the inside of the projector, but over time, it may become so filled with dust that it's preventing ventilation. Look through the projector's user manual for filter removal and cleaning instructions. We'll note that most projector vendors recommend that you invest in a new filter whenever you need to replace the projector's bulb.

Problem: The image is skewed with a trapezoidal distortion, rather than a square or rectangular shape.

Solution: A square image is achieved by positioning the projector so that it's perpendicular to the screen. When the projector is angled to the wall, the beamed light will distort into a trapezoidal shape, and as the angle increases, so will the distortion. If a perpendicular setup is not possible, find a location to

The horizontal Keystone will correct images where one side is wider or skinnier than the opposite side.

Problem: The image is out of focus.

Solution: Projectors include a focus ring that allows you to accurately focus the projector for a given set of distances. For example, Optoma's TX762 can provide a crisp focus if the projector is within 4.92 to 32.81 feet of the screen. Adjust focus until



• NEC's NP-P420X has an ECOMode that reduces the brightness of the picture if it detects overly hot internal temperatures.



• Optoma's TX762 can focus within 4.92 to 32.81 feet of the screen.

place the projector where the angle will have less of an effect on the picture quality. Projectors with a Keystone feature will also help you to align the lens to project at an angle that's higher or lower, which can help to eliminate the distortion. Adjusting the vertical Keystone will help fix images where the top or bottom of the screen is wider than the opposite side.

the on-screen content is the most clear. If you're having trouble bringing the screen into focus, the projector may not be located within its given focal range. Check the owner's manual for the projector to find out what the functional range is.

Problem: The image is too small or large for my projection screen.

Solution: You'll need to adjust the size of the on-screen image using the zoom controls. Some projectors include a ring or lever, while others feature zoom controls on the remote. If the zoom doesn't offer enough range of adjustment to perfectly fit the screen, you may need to move the projector closer to (or farther away from) the screen. Your projector may also be able to alter the aspect ratio of images. For example, some new projectors are capable of switching between the 4:3 (typical format of older TV broadcasts and resolutions found on older notebooks) and 16:9 (wide-screen view found on most current TV shows and notebook screens) aspect ratios.

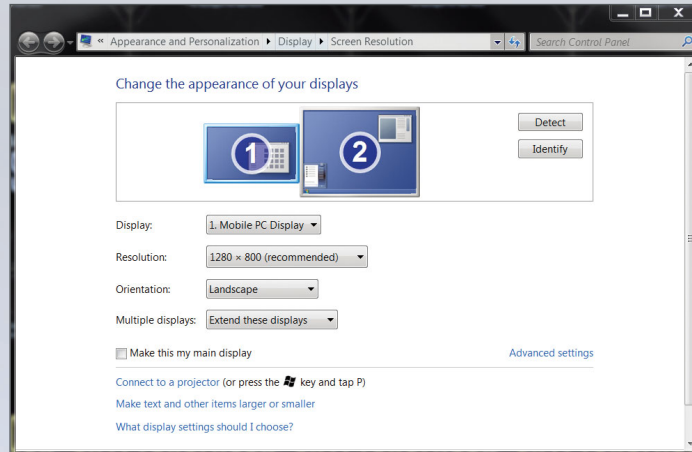
Problem: Even after adjusting the image size, I still can't see the entirety of the computer's Desktop on the screen.

Solution: The resolution of your computer needs to match the native resolution of your projector. For example, a projector that displays content at 1,280 x 720 would not be able to show the entire screen on a PC with display properties of 1,366 x 768. Look at the owner's manual for your projector and change the resolution on your PC to match it. To do so in Windows 7, right-click an open area of the Desktop, click Screen Resolution, and click the drop-down menu in the Resolution field. Move the slider in the drop-down menu to load your resolution, select the Screen Resolution window, and click Apply. You should now be able to see the entire computer Desktop on the projector screen.

Problem: The image from the projector is scrolling on the projector screen.

Solution: Similar to the incorrectly displayed image problem we just addressed, this issue occurs when the

computer is set to output a resolution that's higher than the native resolution of the projector. Lower the computer's display resolution to one that the projector can handle.



If the Windows Desktop won't fit within the projector screen, you may need to lower the resolution of your computer.

Problem: The image appears to be unstable or flickers in and out.

Solution: In this case, the projector is out-of-phase with the device to which it is connected. For example, most computers output video at 60Hz (Hertz), which is a measure of the how often the on-screen image is refreshed per second. When a different refresh rate is used by the projector, the picture may appear to

flicker. Typically, a projector will list a variety of resolutions and refresh rates that it's compatible with, and we'll note that 60Hz is almost always a compatible option. You can change the refresh rate

for your PC by right-clicking an open area of the Desktop, selecting Screen Resolution, and clicking Advanced Settings. Click the Monitor tab and select a refresh rate that your projector can use. If in doubt, try 60Hz. Click Apply and Click OK.

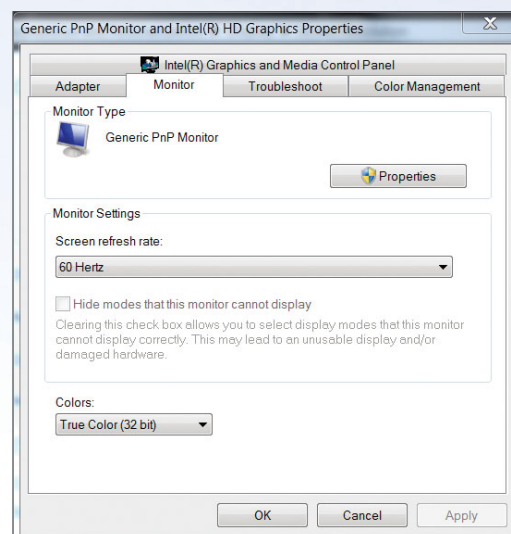
Problem: The color from the projector looks off.

Solution: Projectors typically include a variety of color modes. The Optoma TX762 offers preset color modes for Presentation, Bright, Movie, sRGB (standardized Red, Green, Blue), Blackboard

(used when projecting onto a blackboard), Classroom, and User (manual settings). Try color modes until you find one that best matches the environment where the projector is set up. If none of the color modes provide the color you prefer, try adjusting the manual color options for brightness, contrast, and tint.

Problem: The image is fuzzy.

Solution: Fuzzy or noisy projections are often the result of the cable (that runs from your device to the projector) being too long. The long cable introduces the small white dots, because the cable picks up interference from other electronic and magnetic signals. The noise may also occur if you are using a video splitter, such as a Y-cable splitter. Try running a cable directly to the projector. ■



If the projected video appears to flicker, try adjusting the refresh rate of your computer.

OpenOffice.org 3

Create Charts & Graphs To Analyze Business Data

Office Suite

Beginner

How-To

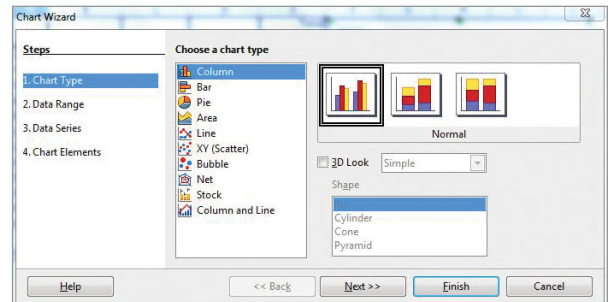
A spreadsheet provides just the right features to help your SOHO (small or home office) business keep track of your company's most important information—from client lists to account data to financial results. But there may be a time when you'll be called upon to analyze and explain some of the data you've collected. The Chart Wizard in OpenOffice.org 3 can help you visually evaluate and present your company's important information with a variety of graphs and charts.

Once you've launched OpenOffice.org, click Spreadsheet to open the Calc software. Locate the spreadsheet from which you want to create graphs and open the file. Click the Chart Wizard icon that's located on the toolbar. (It's the first in the last grouping of icons. As you move your mouse pointer over the icons, a label appears defining the function of each one. Look for the graphic that says Chart.) Or, click Insert and scroll down to Chart. The Chart Wizard dialog box opens. The Chart Wizard contains four steps.

Chart Type. Select the chart type from those listed, including Column, Bar, Pie, Area, Line, Scatter, Bubble, Net, Stock, and Column And Line. An example appears when you change your selection. You can choose to make your graph simple or create it in a box, cylinder, cone, or pyramid 3D format by checking the box that says 3D Look.

As you click from one chart type to another, a dialog box opens showing you what your information would look like in each graph format. When you've made your final selection, click Next.

Data Range. Select the data you would like presented on the chart by typing the range (a rectangular range of cells) beginning with the first cell and ending with the last cell in the



The Chart Wizard in OpenOffice.org 3 lets you create charts and graphs in order to visually analyze your important business data.

Data Range box. Or, click the graphic on the right side of the Data Range box; drag your cursor to select the range of information. Click Next.

Data Series. This step lets you customize the data ranges for individual series of data. As a beginner looking to create a basic chart or graph, you'll be able to skip this section and work with the information you selected in the previous step. Click Next.

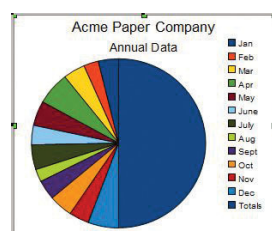
Chart Elements. This page helps you put the final touches on your chart. If desired, enter a title and/or subtitle and a heading for the x, y, and z axis. The Display Legend option lets you select where you'd like the legend to be displayed. Click Finish when you've completed your labeling.

The Chart Wizard has now created a basic chart or graph defining important data for your business.

Make It Yours

You can make additional tweaks to the graphic by double-clicking inside the chart box. The Chart Area dialog box appears. From here, you can change the line style from continuous to dotted, dashed, or other, and you can also change the line color and width. You can add a color fill to your graph or add a transparency.

If you double-click the chart near the legend, another dialog box appears. This gives you the opportunity to change elements such as borders, font, and fill color. ■



Shown is a pie chart created from data stored in a Calc spreadsheet. The Chart Wizard makes a visual record of your company information.

Quick Tips

SECRETS FOR SUCCEEDING IN COMMON TASKS

■ System Image

Question: What is a system image? How is this different from a backup? How do I create a system image in Windows 7?

Answer: Basically, a backup is a copy—it may be a copy of the data that you're working on now, the applications that you use every day, and/or the operating system along

with its drivers and specific setup. A system image is essentially a complete snapshot of your entire drive as it exists this very moment. When you buy a new PC, a system recovery disc is typically included with a system image of the unit as it shipped from the factory.

The difference is that a system

image is bootable and must be restored in its entirety. For example, you can restore the image to another hard drive or restore the system if an unrecoverable problem occurs. By contrast, a backup might be bootable, but it's rare in practice. Also, a backup can restore individual files as needed (rather than an all-or-nothing restoration).

You can use Windows 7 to create a backup or a system image at any time. Windows Backup allows you to create a backup and system image at the same time. The image can be stored to a second hard drive, while the backup files can be saved to removable media, such as a USB drive or CD/DVD. Click Start, open the Control Panel, and then click Back Up Your Computer. Select the appropriate options and follow the prompts to create the backup that you need.

■ Internet Explorer

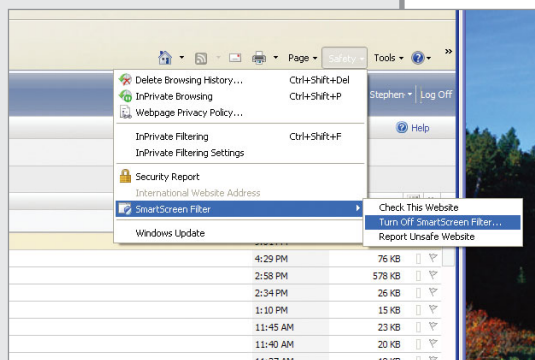
Question: I just upgraded to Internet Explorer 9 and noticed the SmartScreen filter. What is this, and how do I use it?

Answer: SmartScreen is a security feature in IE that helps point out potential phishing Web sites and helps protect you from downloading malware. It can also check downloads from the site against downloads reported to be unsafe. Anything suspicious or previously reported as malicious will flag a warning to alert you to the possible threat.

First, make sure that the SmartScreen Filter is turned on. Launch Internet Explorer and click the Safety menu. Select SmartScreen Filter; if the feature is off, select Turn On SmartScreen Filter. To check a Web site, browse to the site that you want to check, click the Safety menu, select SmartScreen Filter, and choose Check This Website. This sends information to Microsoft about the site or files, which is compared against a growing database of malicious content.

If the site has been reported, you'll see a warning and have the option to close the browser before any harm is done. You can also report sites as malicious or safe to help continue building the database.

Internet Explorer provides a SmartScreen Filter that can identify and report potentially malicious Web sites, but you'll need to turn the feature on.



■ Windows 7

Question: How can I configure Windows 7 to show hidden files and folders?

Answer: Click Start, select Control Panel, choose Appearance And Personalization, and click Show Hidden Files And Folders under Folder Options. When the Folder Options dialog box appears, click the View tab and scroll down the list of Advanced Settings until you find the Hidden Files And Folders options. Click the Show Hidden Files, Folders, And Drives radio button and then click Apply and OK to save your changes. Hidden content should now be visible. You can always repeat this process to hide those files and folders again.

■ Product Keys

Question: How can I find the product keys of all the software on my PC?

Answer: It's easy to lose track of product keys. Once an application is installed, the manuals and boxes get misplaced or accidentally discarded; this can leave your key applications unusable if they ever need to be reinstalled in the future. There are several ways

of problem. First, take the time to locate the documentation for each of your applications and gather those materials into one centralized place; this ensures that you have the keys before you even need them.

If the documentation with the product key is already missing, it's

easy to locate any number of low-cost or freeware tools that can check product keys for you. Just remember that some tools may only locate Windows product keys or other vendor-specific keys, so be sure that you're gathering the keys that you really need.

■ Mice

Question: I recently picked up an old PS/2 mouse. How do I attach it to my USB laptop or desktop?

Answer: A PS/2 mouse is fully compatible with a USB-equipped computer, but you'll need a small adapter to connect the dissimilar ports. Fortunately, these are very common adapters, and you can locate several suitable options at a local electronics store or online retailer.

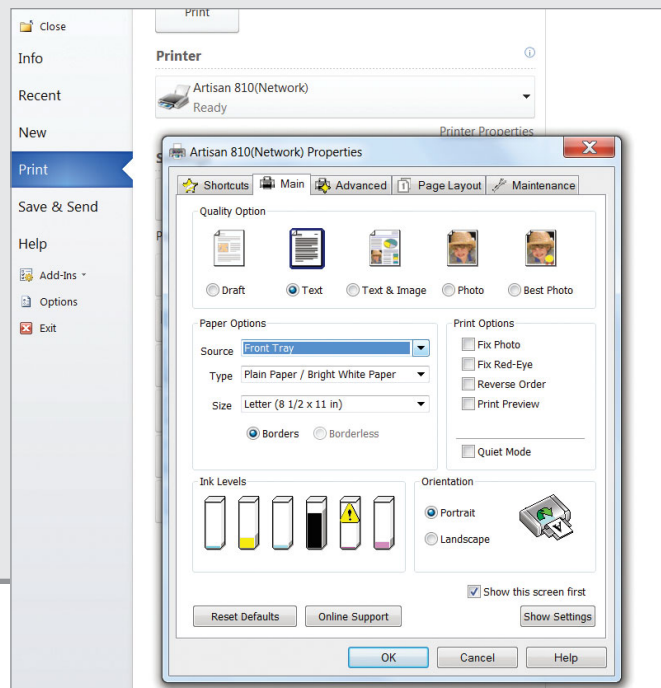
■ Microsoft Word

Question: How do I send my Microsoft Word 2010 document to a different printer than my default printer? How do I tell the printer to use a different paper source for certain printouts?

Answer: Launch Word 2010 and open the document that you want to print. Click the blue File tab, select Print from the left menu, click the drop-down menu in the Printer area, and select your connected printer from the available list of printers. At that point, you can just click the Print button and use the default paper source.

To change the paper source, click the Printer Properties link just below your selected printer and make sure the Main tab is selected. In the Paper Options area, select the desired paper source from the Source drop-down menu. Click OK to save your changes and try printing again. That should get you to the right printer and paper source. (*NOTE: The options and menus we mentioned may vary by printer.*)

Microsoft Word 2010 can configure the desired printer and paper source.



■ DVDs

Question: Some of my DVD movies keep pausing and skipping. How can I stop this?

Answer: Chances are that the discs are dirty. Check the data side of the discs for fingerprints, dirt, scratches, moisture, cracks, or other damage. Most accumulations of dirt can easily be removed by wiping the disc with a clean, dry towel. Wipe in a “wagon

wheel” pattern, starting from the center and gently rubbing outward toward the edges. If the problem persists, the inside of your drive may be dirty. Open the tray and use a can of compressed air with a long, thin nozzle to blow out any debris.



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—Joanna R., college student

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How It Works

When your car's "Check Engine" light appears, or even before, plug the CarMD handheld device into your vehicle's Data Link Connector (DLC). The DLC is a small port found right under the dashboard on all 1996 and newer vehicles. It's the same place your mechanic plugs in his expensive diagnostic tools. Not sure where to look? Visit www.CarMD.com to search by year, make, and model.

In seconds, CarMD beeps to confirm the test is complete. Then the tool's built-in LEDs let you know how severe the problem is (Green = OK, yellow =

possible problem, red = service required). A yellow light can even help you catch a hidden engine problem before you're miles into your next road trip.

To learn more about your car's problem, connect CarMD to your computer using the included software and USB cable. CarMD customers gain free access to an extensive online database (www.carmd.com) that helps diagnose the cause and estimate what repairs should cost down to fair parts and labor in your region. The reports can be used to help do-it-yourselfers with repairs, and give you a bargaining tool with your mechanic.

Features

The CarMD Vehicle Health System is now for both Mac and PC use. CarMD has also made substantial enhancements to its online portal, including helpful Vehicle Health Matters content and how-to videos for drivers. CarMD customers also now receive Staying Healthy information, including maintenance reminders and FREE access to see all of the safety recalls associated with your registered vehicles.

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Short & Simple Tips To Make Things Easier

Windows Installation Tip

When installing Windows, you'll need to alter the boot priority in the BIOS (Basic Input/Output System) so that the computer will boot from your optical drive (the drive that contains your Windows installation disc), rather than the hard drive. But the instruction that some articles leave out is that you'll need to return the boot priority to the hard drive after Windows has finished installing. Otherwise, you'll continually be greeted by a message at boot up that asks if you want to "Press Any Key To Boot From CD Or DVD."

Justin P., Luna, Philippines

Tracking Health Information

For the past 12 years, I have been keeping all of the health-related issues for my wife and I in a Microsoft Excel spreadsheet. It's an easy way to have a detailed record of all doctors, pills, surgeries, and other items regarding our physical condition. When we visit a doctor or lab, we can just print out a sheet for them to keep, which sometimes lets us avoid filling out information on the offices' sheets. And if we still need to fill out the personal information sheets, we have a helpful resource at hand.

Peter F., Guelph, Ontario, Canada

A Fast Way To Close Windows

If you have a number of Web pages or browser tabs open and want to quickly close them without using the mouse, press CTRL-F4. With programs that can have multiple documents or tabs open at the same time, the CTRL-F4 key combo will close one document at a time. If you want to shut down the entire application,

hold down ALT and press F4, which will shut down all active documents or tabs. I've found that this method is much easier than using the mouse to click the small red X in the corner of the screen. This tip also works great when you get unwanted pop-up pages, because you can avoid accidentally clicking the pop-up.

Ron M., Kitchener, Ontario, Canada

Change Symbols Back To Apostrophes

One common problem I've found with emails is that symbols sometimes replace apostrophes and other punctuation marks. I found that in Windows Live Mail there is an inbox encoding option where you can select Unicode, which is a format that will replace the symbols with the correct text. To do so in Windows Live Mail, select the Encoding button in the Actions ribbon. Then, select More and click Unicode (UTF-8). This format will now be the default to open all your messages. You may be able to do this in other types of email accounts as well.

Paul K., Montgomery, Texas

Action Photos In Low Light

I've found that it's difficult to take digital photos in low-light action situations, such as my daughter's play or her nighttime sporting events. A better way for me to get sharp photos is to use the camera's movie setting, and when editing, use the photo capture feature of a video viewer to snap the still frame I want. Most memory cards will hold a good number of short videos, so you can extract several good photos from the short clips. Even with my low-cost camera, I've been very successful using this technique.

Steve T., Little Rock, Ark.



Find It Online

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www.blurb.com

If you own your own interior design, photography, remodeling, catering, clothing, or other business in which customers place a premium on the visual appearance of your work, Blurb is a great way to show off what you're capable of doing. Starting at \$10.95, Blurb supplies you the tools to create a square-shaped, 7- x 7-inch, 20-page soft- or hardcover book featuring color graphics and text that you supply. Book options range up to 12- x 12-inch square books that hold up to 440 pages. In addition to designing tools and software, a PDF To Book converter, and the ability to hire an expert to help design your book, Blurb operates a bookstore where customers can sell their creations if desired. Elsewhere, Blurb's free online sharing tools can help promote and display your book via Twitter, Facebook, email, blog, or Web site.

Wag.com

www.wag.com

Just because you're putting in extra hours to keep your business running smoothly doesn't mean that you can neglect to fill Fido's bowl at the end of the day. Wag.com (in beta at press time) is here to help by letting pet owners do all their shopping for dogs, cats, birds, fish, reptiles, and other small animals with online ease. Further, if you find the items you accumulate while shopping among the site's 10,000-plus offerings leaves you with a bill of \$49 or more, you'll qualify for free shipping that's promised in one to two days. Also handy is the myLists tool that lets you easily reorder favorite products in a jiffy. From the same people who launched Diapers.com and Soap.com, Wag.com is neatly organized into pet-specific stores and also includes Pampered Dog and Cat Boutiques areas filled with high-quality toys, travel gear, bedding, grooming tools, medicine, and clothing.

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InvitationBox.com

www.invitationbox.com

Before you know it, Halloween, Thanksgiving, and the holiday season will be upon us, which, of course, means plenty of parties. If you plan on throwing your own, head to InvitationBox.com, a site that offers more than 13,000 invitations to pick and choose among, including 5,000-plus invitations featuring exclusive designs. This treasure's chest of invites also offers a plethora of stationary, gifts, thank-you cards, and other choices, including an InvitationBoxGreen lineup of invitations printed on recycled paper for which a portion of sales goes to related causes. For as sprawling with choices as the site is, InvitationBox.com does a wonderful job of neatly organizing everything through the use of filters; Birthday, Wedding, Party, Holiday, and other categories are displayed across the top of the home page, and a Popular Categories section is on the left. Further, graphics, pricing, and

ratings are prominently displayed to give you an exact idea of what to expect.

About.me

<https://about.me>

Physicians, Web developers, models, musicians, CEOs, consultants, students, entrepreneurs, photographers, soldiers, politicians, game makers, designers, youth workers, cartoonists, and others from seemingly every walk of life are using About.me, self-described as a “Custom Profile & Personal Analytics Dashboard.” Think of About.me otherwise as a way to create your own dynamic splash page that neatly ties up your Facebook, Twitter, LinkedIn, Flickr, and other online profiles in one location. Thus, if you’re a photographer who shoots weddings, parties, and other events, creating an About.me profile featuring a customized background, biography, and various profile links enables potential customers to easily view your work, qualifications, and other pertinent data scattered across the Web. Getting started is as easy as registering to receive your own About.me URL. On the analytics side, About.me can also offer insight into how people view your profile, how they arrive at it, and what they do once they get there.

Vokle

www.vokle.com

One great aspect concerning the Web where it meets business is the vast and diversified ways it lets you draw attention to your company. Vokle is an example. Essentially, the site provides tools for creating a Web-based Q&A platform via live video broadcasts you can brand as your own. For example, you could, say, broadcast monthly to take questions from customers via live video calls and text-based chats. Vokle provides an embedded video player that you paste on your business’ Web site, meaning viewers never leave your Web site so you don’t lose

traffic. The player also includes separate modules for chatting and viewing real-time Twitter feeds and trending topics. Other features include one-click editing (close-ups and multi-shot displays)

and the ability to designate someone as a pre-screener to prep viewers asking questions. Elsewhere, you can host guests, such as an expert in your particular field, from remote locations. ■

Share The Wares

Some of the best apples in the online orchard are the free (or free to try) programs available to download. Each month, we feature highlights from our pickings. This month, we help you stay organized with an add-on for Gmail that converts email messages into tasks.

Taskforce Pro

www.taskforceapp.com

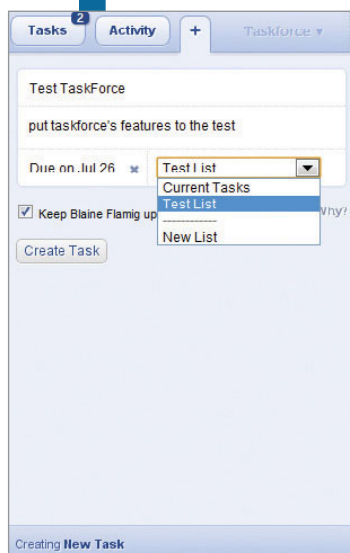
“Save time. Stay organized.” If you’re a Gmail user and that sounds promising, check out Taskforce Pro (\$5 per month; 30-day free trial), an add-on for Firefox, Chrome, Safari, or RockMelt that converts Gmail messages into tasks to help organize the inbox. If you’re someone who amasses countless messages deemed too important to archive only to lose track of them, Taskforce’s worth becomes apparent quickly.

Upon converting a message to a task, you can archive the message with the task remaining available in the Taskforce interface situated at the upper right of Gmail’s window until you complete it. You can also delay tasks and assign collaborators (including non-Taskforce users) to share updates without having to exchange multiple messages back and forth. Elsewhere, syncing with Google Tasks and Calendar, adding a task to an existing task, creating task lists, and prioritizing tasks is supported. Android and iPhone device usage is also possible via a mobile browser at Taskforce’s mobile site (taskforceapp.com/mobile). Additionally, Taskforce can convert entire Web pages into tasks via a Send To Taskforce extension for Google Chrome available in the Chrome Web Store.

To install Taskforce, go to www.taskforceapp.com and click Add To Gmail. Enter your Gmail email address in the Sign Up For Taskforce field and click Sign Up. Next, click the Get Taskforce button that displays for your respective Web browser. Because we used Chrome for our tests, Taskforce navigated us to the Chrome Web Store to acquire the extension.

Once installed, you can convert a message to a task either by clicking Create Task in Taskforce’s interface or by opening a message and clicking Convert To New Task. (Taskforce also places Add To Existing Task and View Task options in new and existing messages.) Next, enter a task description, assign a due date, and choose a Tasks List (such as Current Tasks) from a drop-down menu for sorting. To keep the message’s sender updated of task activities, check Keep [Sender] Updated Via Email. Click Create Task to finish. From the interface you can view a task’s activities, access a user guide, and customize settings. (A free version of Taskforce without the Pro features is also available.)

Taskforce is an add-on for Gmail that works in Firefox, Chrome, Safari, and RockMelt Web browsers to turn email messages into tasks that you can share with other users.



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Kwik MobileSync

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www.nero.com

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MOTOROLA

htc



acer



LG

ARCHOS



Sony Ericsson

SAMSUNG™

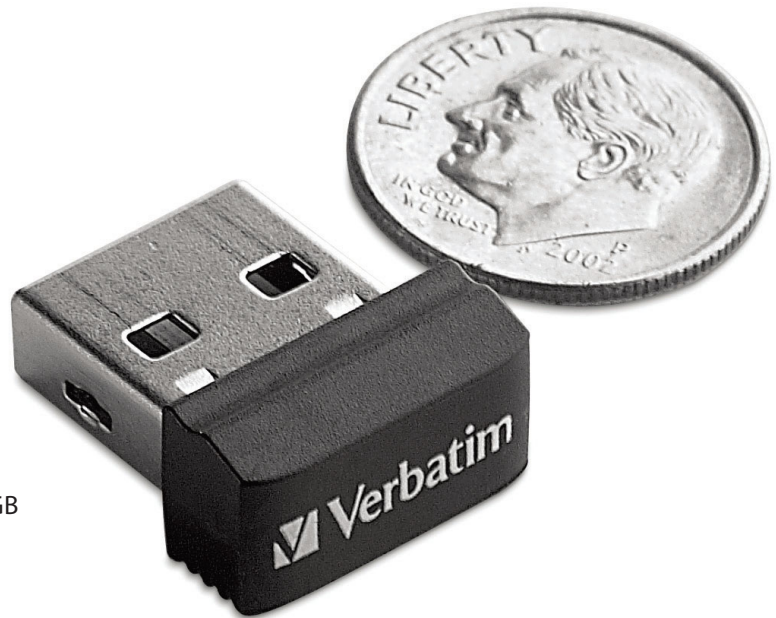
Ovation

Each month, the *Smart Computing* staff gets to work with all kinds of new computing and consumer electronics products. Here are some of the most exciting products to cross our desks.

Store 'n' Stay USB Drive 4GB

\$19.99 | Verbatim | www.verbatimstore.com

Flash drives (and their prices) are shrinking. In fact, the biggest part of the Verbatim Store 'n' Stay USB drive is its USB 2.0 connector. The drive itself is flat enough that you can leave it attached to your laptop (or net-book) while you slide the laptop into its sleeve or bag. That's a big improvement over the typical "thumb drive" flash drive design, which leaves the bulk of the device hanging out of your laptop. The Store 'n' Stay supports Windows 7 and is also available in 8GB and 16GB capacities.



BinderPad

\$29.99 | ZooGue | www.zoogue.com

ZooGue has quickly made a name for itself as a creator of innovative cases for the iPad and other tablet PCs. The company's new Binder-Pad for iPad 2 will only add to ZooGue's rep as a designer of clever, useful tablet accessories. The case is simple, affordable, and convenient. It's a padded fabric pouch with cutouts for the device's screen and controls, hook-and-loop closures to keep the tablet safely in the pouch, and (OK, here's the clever part) a 3-ring binder tab along the edge. Got a 3-ring notebook? Just clip the Binder-Pad inside: Your iPad 2 stays safe, cozy, and handy. The ZooGue BinderPad is a simple way to protect an iPad 2 if you happen to use a three-ring binder at work.

News From The Help Desk

Common Tech Questions

Q When I read my Outlook Express email on-screen, the font is a good size and perfectly readable. But when I print the email, the font is so small that I can't read it. Is there a way to correct this?

A There are a couple of ways to address this common problem. First, one can always select and copy the text and then paste it into a word processor, changing the font to any size you prefer. Another alternative is to select Outlook's or Outlook Express's Format Text tab, select Plain Text, and then print the message. But having to go through either of those every time is a little awkward. If the problem is occurring with Outlook Express, you can sometimes permanently solve it by configuring IE to print the way you prefer, because Outlook Express actually uses Internet Explorer to print emails: In IE, select View and Text Size. Select the desired text size. Finally, one more option: This has been reported as an issue that usually occurs with IE7, so consider upgrading to IE8/9.

Q Intermittently—but seemingly more and more often—I'm seeing Chinese characters in Firefox, usually at the top of the frame. If I change the character encoding, it goes away, but sooner or later it reappears. Is there a way to get rid of the characters permanently?

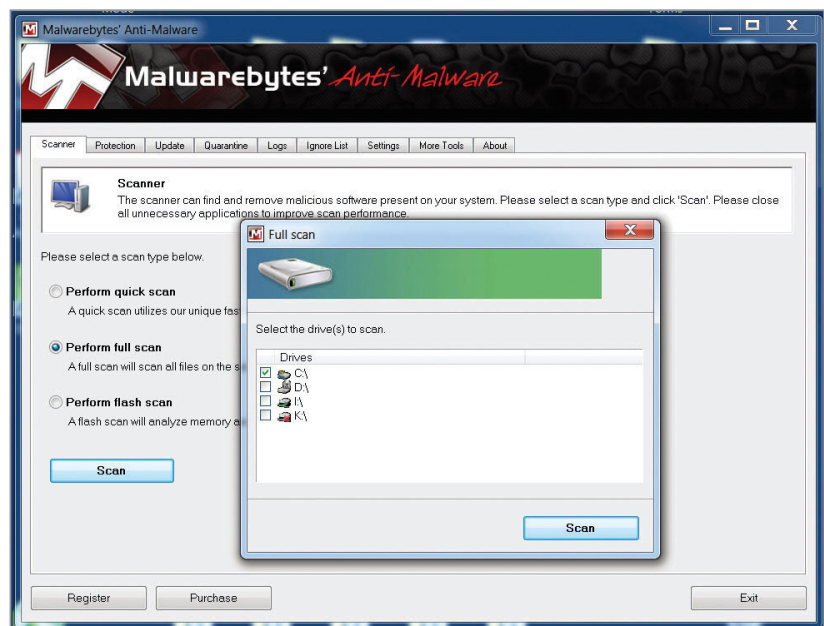
A If you're using the RealPlayer browser plug-in, its corresponding extension may be causing the problem. Disable the extension in RealPlayer's Preferences menu: Go to RealPlayer, select Tools from the main menu drop-down, then Preferences, and then Download & Recording. Disable the extension by unchecking the Enable Web Browser Download & Recording For These Installed Browsers (or similarly named) checkbox. (Unless you wish to remove RealPlayer entirely, don't remove the plug-in itself, which is found under Tools, Add-Ons, and Plug-Ins.)

Q Why am I receiving spam emails from someone in my Contacts list? I've checked with my friend, and his other contacts are also getting spam purported to be from him.

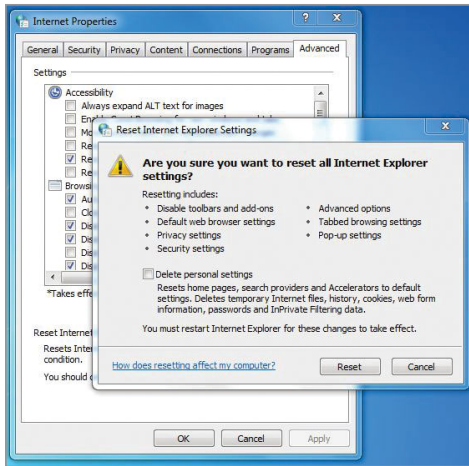
A It's possible that someone has figured out your friend's email sign-on and password. (If your contacts are getting spam emails purported to be from you, then your sign-on and password have probably been compromised.) Note that this is not necessarily the result of a malware infestation—although it could have started that way, with malware being used to harvest the sign-on and password. In any case, the thing to do now is to have your friend log on and immediately change his username and password, as well as the answers to any security questions used by the account. If he cannot log on, it's time to dump that email account and start fresh.

Q My computer sometimes reboots for no apparent reason. Sometimes it happens while I'm working on it, and sometimes it's when the system is just sitting idle.

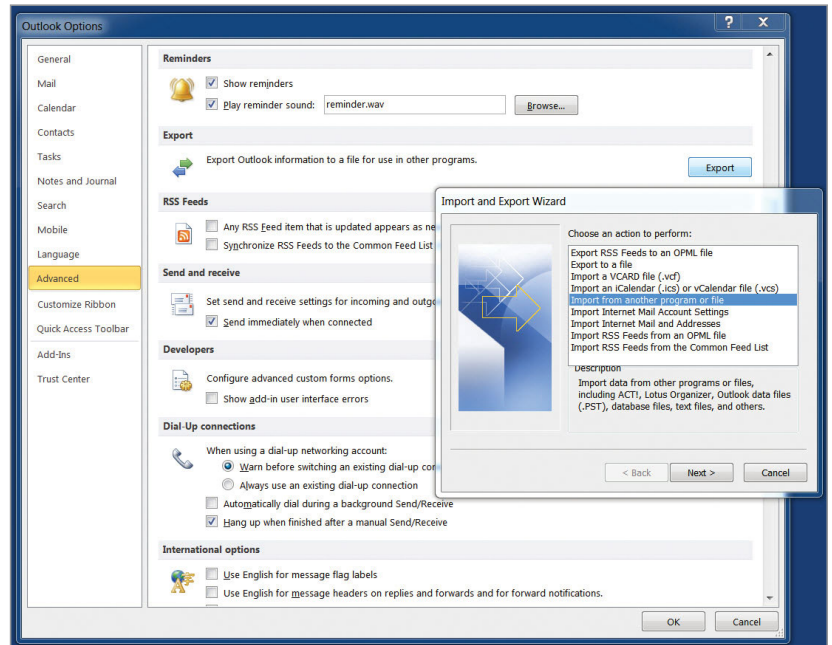
A In cases like these, it's always worthwhile to make sure that the problem isn't being caused by malware, so start with a couple of good scans from trusted anti-malware apps, such as Malwarebytes Anti-Malware (free



A wide variety of problems can be caused by malware, so a good first step is to run an anti-malware app, such as Malwarebytes Anti-Malware.



If Internet Explorer is running sluggishly (or refusing to run at all), resetting your browser may solve the problem.



Use Outlook's Export function to back up your email or to create a copy for subsequent import to a new computer.

for personal use; www.malwarebytes.org). If you're pretty sure the system is clean, you're typically down to two other causes. First, you may have conflicting applications bumping into one another. If the reboots occur when you're not running any foreground apps, then start looking at your Startup and utility apps that run in the background. Shut down as many as possible and then start adding them back in one at a time to see if you can isolate the one causing the problem. The other possible cause is damaged hardware: You could have a bad stick of memory (easy enough to swap and replace), graphics card (also easy but often more expensive), or motherboard (just hope that's not it). If you can borrow some replacements, it's easy enough to swap out and test the first two; replacing the motherboard is not for the faint-of-heart, but it's certainly possible.

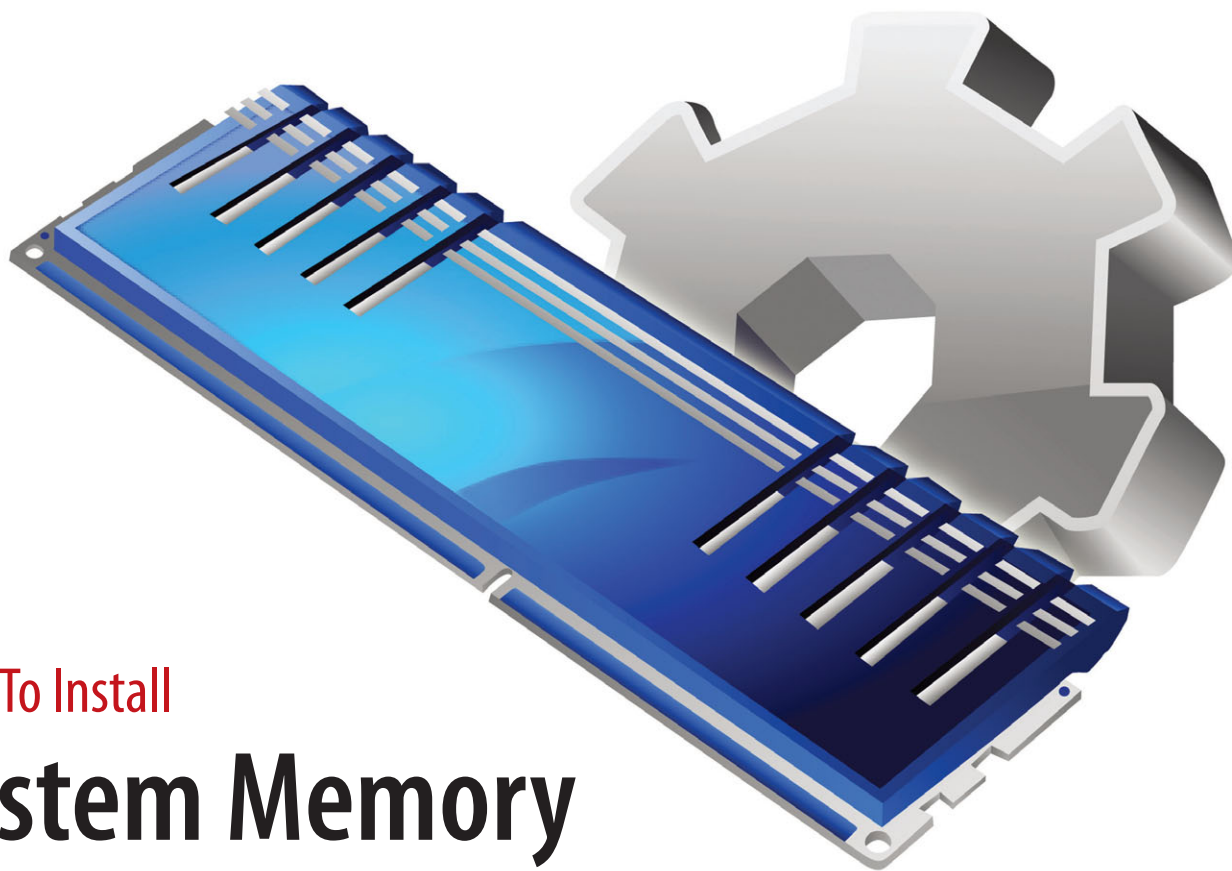
Q Although it used to work, these days when I'm using Internet Explorer it often locks up or just refuses to open in the first place, displaying a message that says, "Internet Explorer has stopped working." What can I do about this?

A Assuming that you've already checked out your system to ensure that you don't have a malware problem, it might be time to reset IE. This is easy to do, and it can resolve a host of problems. Bear in mind, though, that when you reset IE, you'll lose all settings, add-ons, and customizations (but not your

Favorites). To reset IE, close all of your applications, including IE. Click Start. In the Start Search box, type `inetcpl.cpl` and press ENTER. The Internet Properties dialog box will open. Select the Advanced tab and click Reset. For a complete reset, be sure to check the Delete Personal Settings checkbox in the pop-up window that appears. Click the Reset button.

Q I don't actually have a problem—yet. In fact, I'm trying to avoid one: I'm about to purchase a new computer. Before I do, I'd like to back up my Outlook emails so that I can move them over to the new computer.

A These days, this is a simple task. In Outlook, select the File Tab and then Options. Select Advanced. Under the Export heading, click the Export button. From the list of export options, select Export To A File and then click Next. Select Outlook Data File (.pst) from the list of file types. Select a source folder (your Inbox, for example) and then select a destination and click the radio button that describes what you want to do in the event of duplicates. Click Finish. Before outputting the file, Outlook will ask if you wish to assign a password. When it's time to restore your emails to the new computer, follow the same steps, but select one of the Import options after clicking Export. (Yeah, we know; it's silly to have to click Export when what you actually want to do is Import. So what else is new?) ■



How To Install

System Memory

When a computer's memory falters, tying a string around the mouse cord won't help much. Nope, what your memory-deprived PC needs is an infusion of DDR (double-data-rate) memory, STAT. But don't fret, installing new memory is one of the least expensive ways to improve your PC's performance, and it's probably easier than you thought.

Memory Demystified

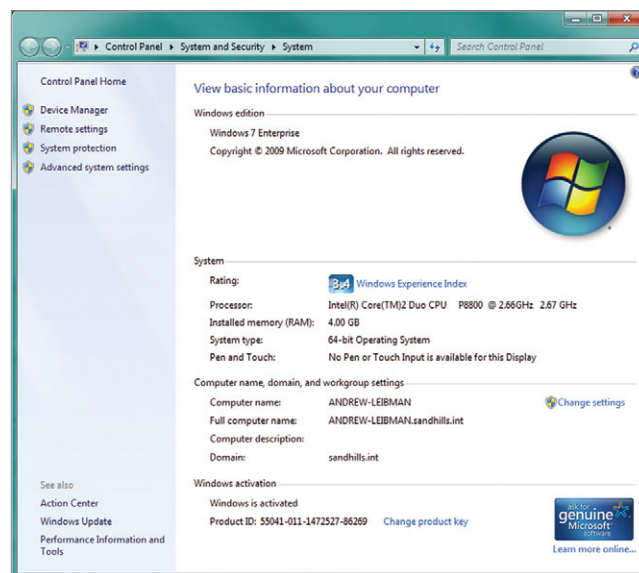
System memory, also known as DRAM (pronounced dee-ram; dynamic random access memory), plays the role of messenger between your computer's CPU and its main storage, holding all temporary data your computer needs to run programs and background processes until the CPU needs it or until it is written semi-permanently to the PC's main memory, which consists of a hard disk drive or SSD (solid-state drive). For instance, when you launch Internet Explorer, the system copies all data related to the running of that program from the main storage to system memory. As you

browse, system memory plays tag with your browser cache to alternately store and display the contents of your browsing session. When you launch another program, system memory loads data from that application, and any other applications you launch, as well as a multitude of background processes.

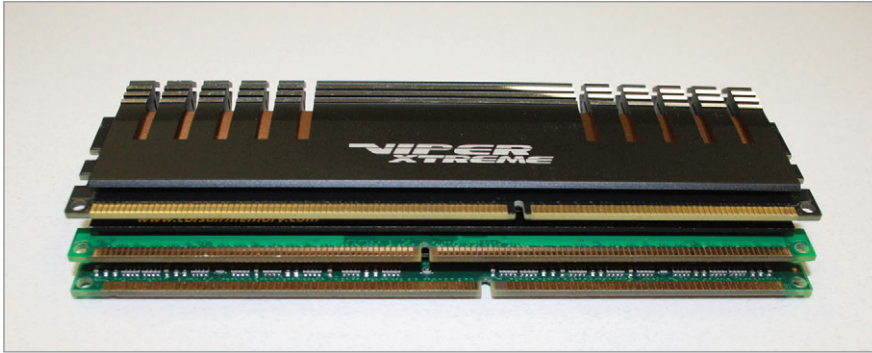
Shedding Light On DIMMs

System memory comes in two form factors, DIMM (dual inline memory modules) for desktop memory and SODIMM (small outline DIMM) for notebook memory. Memory modules in most modern PCs

are either DDR2 or DDR3, though some older PCs may still be running DDR. We'll explore the differences later on, but it's important to note that each memory type has



The Computer Properties screen displays the amount of installed memory and whether you're running a 32- or 64-bit operating system.



From bottom to top, these DDR, DDR2, and DDR3 modules are each keyed to fit only in corresponding slots.

a notch carved in it among the metal contacts that correlates to specifically keyed memory slots. This ensures that you can't plug a DDR3 module into a motherboard that only supports DDR2, and vice versa, and it also ensures you install them in the right direction.

When To Upgrade

You've probably heard that upgrading your system memory can speed up your PC. A system memory upgrade will improve how your PC performs if the sluggish performance is due to a system memory shortage. This is because as soon as your PC runs out of available system memory, it turns to virtual memory, which is just a fancy term for main storage that acts like system memory. When this occurs, you'll typically notice a dramatic slowdown, because reading and writing data from main memory is incredibly slow. The hard drive, and even its faster sibling the SSD, were not built to be read and written to constantly as you open new programs and manipulate files during your computing session. If you have plenty of system memory already, upgrading to slightly faster modules will only marginally improve your overall PC performance, and you may not even notice the difference.

You can reasonably assume that your PC needs a system memory boost if performance appears to slow down as you launch more programs, if your PC is more than three years old and has not already had a system memory upgrade, or if you know that multiple background processes and a few

foreground programs running simultaneously are bogging down your system.

You may also consider upgrading your system memory if you do not have enough, but we'll touch on memory capacity concerns later in the article.

Check Your QVL, ASAP

When you decide that it's time to upgrade, there are several specifications you

a QVL (qualified vendor list), which lists brands and part numbers of all the memory modules that have been tested and shown to work with the particular motherboard. Your motherboard or PC manual may include a QVL among its pages, but check online for the most up-to-date information. It's important to consult the QVL first, because even if you purchase memory that should work in your motherboard (but that isn't on the list), sometimes it just won't.

If you cannot find a QVL, or want to make sure the modules recommended in it are indeed appropriate for your PC, read on for all the facts you need to note when choosing the right system memory for your upgrade.

Capacity concerns. There are three limiting factors when it comes to system memory capacity. The first is the current peak capacity of memory modules available, and the second is the number of memory slots that exist in your



The timings for this Patriot Viper Extreme DDR3 module (\$89.99; www.patriotmemory.com) are listed right on the label.

have to know in order to purchase system memory that will work with your motherboard. Because motherboard and system memory compatibility can be difficult to determine, we suggest that you consult your PC or motherboard manufacturers' Web sites and look for

motherboard. As of this writing, 4GB modules are widely available. Most mid-range motherboards come with four memory slots and low-end models can have as few as two. That means that on your average midrange motherboard, you'll be practically limited to 16GB of

system memory, and low-end motherboards will be limited to 8GB.

The third limiting factor is your operating system. Avid *Smart Computing* readers will also recall that processors were once a system memory barrier, but nearly every processor sold in the last five years is capable of accessing more than 4GB of memory. Although processors effectively punched through the 4GB system memory limit long ago, 32-bit, consumer-centric versions of Windows, including WinXP/Vista/7, recognize only capacities of 4GB or less.

To determine if you're running a 64-bit or 32-bit operating system, click Start, right-click Computer, and click Properties. Look under the System Type heading and you will see whether you're running a 32-bit or 64-bit operating system. If you see 32-bit, then stick with 4GB of memory. If you see 64-bit, then feel free to purchase 4GB or more.

Speed specifications. Memory manufacturers measure the speed of memory modules in both MHz (megahertz) and MTps (megatransfers per second). For instance, a DDR3-800 module has an 800MHz data transfer rate (technically, 200MHz quad-pumped), but the same module is also listed as PC3-6400, which tells you that it has a theoretical bandwidth

of 6,400MTps. Your PC or motherboard will be limited to a memory with a given speed, so don't buy memory rated above that number.

System memory also comes with a CAS (column address strobe) latency rating, which appears as four numbers separated by dashes (i.e. 3-4-4-8). There's a lot of information on CAS latency that falls outside the scope of this article, but suffice it to say that it simply describes the number of clock cycles required to perform various memory-specific operations. Lower numbers mean that the memory can do more in less time, but higher-speed memory modules will generally have higher CAS latency numbers. There aren't many limitations here you need to know about, so as long as the speed of your new modules (listed as DDRX-XXX or PCX-XXXX) matches the specs of your PC or motherboard, you're in good shape.

Channel choices. Generally speaking, system memory is sold in pairs (for

Troubleshoot Common Memory Installation Problems

As long as your new system memory came from your motherboard's QVL and it supports the right specs for your OS, processor, and motherboard, then you should be good to go. Occasionally, however, you might encounter a problem starting your PC after installing new memory. Start by taking a look at your BIOS (Basic Input/Output System) by restarting your PC and quickly pressing the indicated key (typically F1, or DELETE; consult your motherboard or PC manual if you are unsure). Navigate to the DRAM settings screen and ensure that the memory settings are set to Auto, and that the BIOS recognizes and is set to the memory's default SPD. If the memory voltage is configured as Auto, change it to the default value for your memory. Save your changes and exit the BIOS (typically by pressing F10 and ENTER) and then allow your PC to reboot.

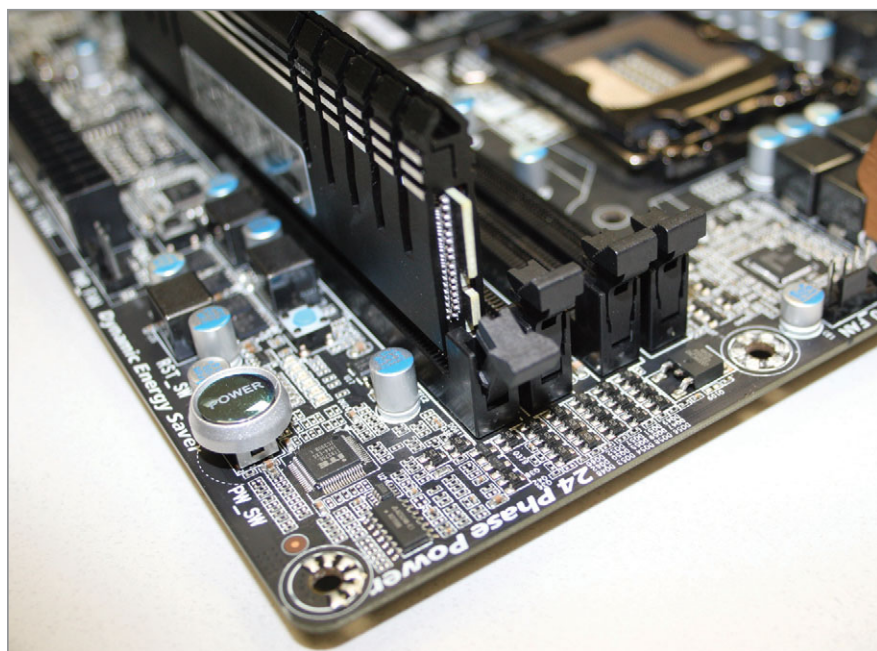
dual-channel) and threes (for triple-channel). This is because matched memory modules have the same latency settings, speeds, and capacities to best ensure the highest throughput. A system with dual-channel memory can read and write data to two memory modules at once. Some of the latest processors can also talk to three memory modules at once, and these are called triple-channel systems. The takeaway here is that it's better to replace your old memory modules instead of simply adding more, one stick at a time.

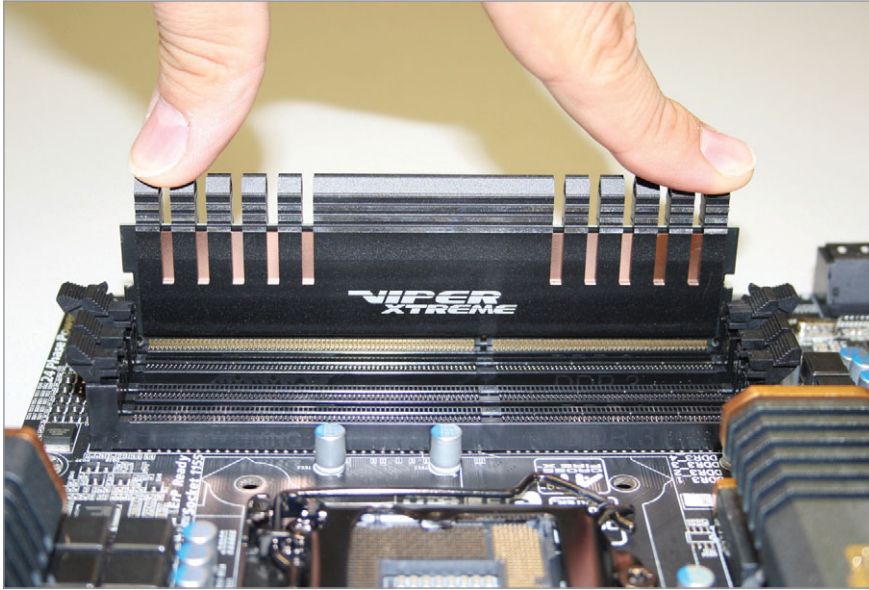
Non-ECC & unbuffered. Memory also comes in ECC/non-ECC (error correcting code) and buffered/unbuffered varieties. All you need to know is that these are features that cater to servers, and you don't need them. Just get non-ECC unbuffered memory.

The Shortcut

Although we've walked you through the three main specs you need to know, speed (in MHz or MTps), capacity (in GB), and channel (dual or triple), there's an even easier way to determine the

Verify that these tabs are disengaged before removing the old modules.





Insert memory by pressing down firmly until the tabs click shut.

memory that is compatible with your PC or motherboard. Just visit www.patriotmemory.com/configurator and use the drop-down menus and Go button to select your system or motherboard. It'll tell you everything you need to know, even recommend the Patriot Memory modules currently available for your system.

Install The Memory

Now that you've acquired the appropriate memory module upgrades for your PC, we need to install them. If you're installing memory modules on a PC you're building, then you should ideally install them before installing the motherboard in the case. Otherwise you need to start by opening up your system. First, power down the computer and remove the power cable. Remove the case side panel to access the motherboard, making sure to discharge static electricity before touching any of the internal components by simply touching any metal portion of the case.

Next, locate the DIMM slots on the motherboard. They're typically labeled as such; they're long and narrow and generally appear adjacent to the processor socket. To remove your existing memory modules, press your thumbs firmly on the tabs at either

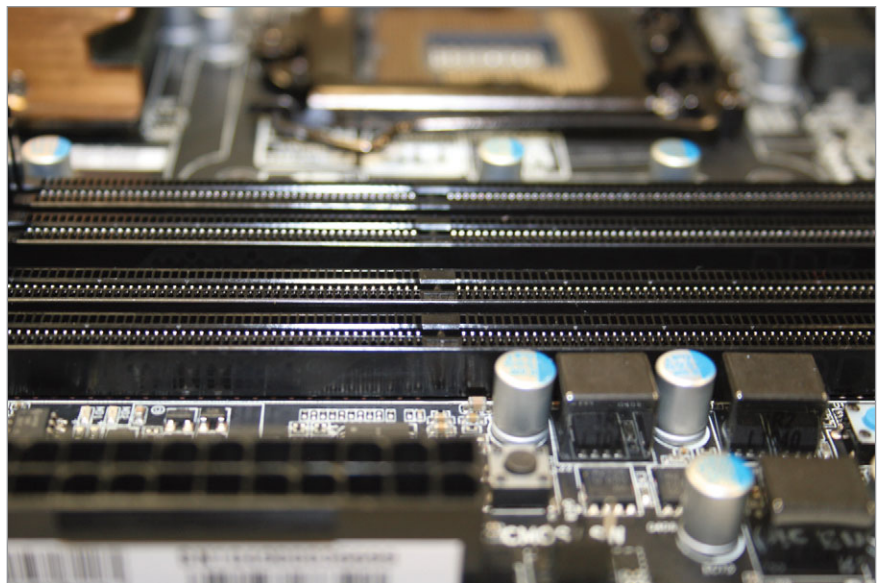
side of the slot so that they rotate away from the edges of the module. Also, before inserting the new memory, make sure to unlock these tabs on any empty memory slots you plan to fill.

Next, unless you plan to fill all of the memory slots, you need to determine which modules should go into which slots. For instance, if you are installing four modules, and you only have two matched pairs of system memory, you'll want to make sure each matched pair

is running on one channel. There's no hard-and-fast rule here: Motherboard manufacturers occasionally group slots that correspond to the different channels together or use different colored slots to denote channels. The only way to know for sure is to consult your motherboard or PC manual.

When you know which slots to populate, remove the new system memory from its packaging and line up the notch in the module with the key in the slot, then gently but firmly press straight down on the new module until it slides into place. Do not force the module into place. If you're having difficulty, double-check that you purchased the appropriate memory for your PC. Often, the tabs will engage once a module is fully inserted, but press them inward gently if this does not occur. Repeat this process for each new module you install.

Finally, replace the cover on your PC, reattach the power cable and plug it into the wall socket. When you press the Power button, your PC should boot and recognize the new memory immediately. To verify that your new memory is there, click Start, right-click Computer, and click Properties. Look at the right side of the window under the Installed Memory heading and you will see the capacity of your system memory. ■



The keys on these memory slots will only let you install DDR3 memory.

SOFTWARE UPDATES

When it comes to protecting your software, installing the latest updates is one of the most important steps you can take. Software updates fix bugs, plug security holes, and sometimes even add new features. Here are the updates you should know about this month.

Apple iPhoto 9.1.5

UPDATE: iPhoto 9.1.5 is a general update that addresses bugs and improves some features of the photo suite. The Adjust Time And Date command now shows the correct date range of each event when you apply either feature. If you noticed an issue with incorrect scrolling in the Photos view as Event Titles appear, this update addresses that problem. The download also ensures that photos deleted from a Web album via the contextual menu are only removed from the album and not the library. Additionally, the 9.1.5 update fixes a crop adjustment issue when using the Revert To Original command.

INSTALLATION: To get this update, direct your browser to support.apple.com/kb/DL1411. Next, click the Download button in the upper-right corner of the page. A 221MB update file will download immediately. When it's finished, click the file and click through on-screen instructions to install the update.

Yahoo! Messenger 11

UPDATE: Yahoo! Messenger 11 is no longer in its beta version: Users can download the final version, which includes bug fixes, overall stability improvements, and new standard features. You may invite friends to play Yahoo! Messenger Games as you're instant messaging, text messaging, or video/voice chatting. Yahoo! has enhanced the social media integration for Messenger by letting users interact with friends and view updates from Yahoo! Pulse, Flickr,

Facebook, Twitter, and more. You can post a single updated status, and Yahoo! Messenger will distribute it simultaneously to Yahoo! Pulse, Facebook, and Twitter. In terms of accessibility augmentations, users are now able to remain signed in to multiple PCs and pull up IM conversations at whichever location they've signed in. Yahoo! also added seven new skins to Messenger.

INSTALLATION: To get version 11 of Yahoo! Messenger, enter messenger.yahoo.com in your Address bar. Click the Download Now button and then click Save in the dialog box. Follow the on-screen instructions to complete the download and installation.

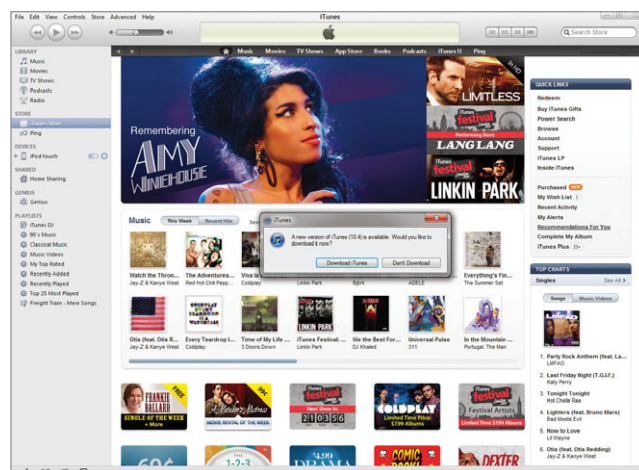
Apple iTunes 10.4

UPDATE: The 10.4 update for iTunes has been released for the OS X Lion upgrade. New changes accommodate for Lion's Full-Screen App feature, so you can expand iTunes (and other

Mac apps) to full-screen mode to eliminate any distractions. Apple states that iTunes is now a 64-bit Cocoa app (meaning that it has undergone the transition from a 32-bit to 64-bit program). This upgrade may not support some older third-party plug-ins.

INSTALLATION: Go to www.apple.com. Click Support in the navigation bar at the top of the page. Select the Downloads section, type the keyword **iTunes** in the Search Downloads field, and press ENTER. Click iTunes 10.4. Click the Download button and you will be directed to the iTunes download page. Select a version option, enter your email address (this is optional), and click Download Now.

Alternatively, iTunes will periodically prompt you to update to the latest version when you open the program. If the dialog box appears, click Download iTunes. (If you do not see the prompt, click Help and then click Check For



Did you know that you can update iTunes without downloading the file from the Apple Web site? Simply click Help, Check For Updates, and Download iTunes in the program.

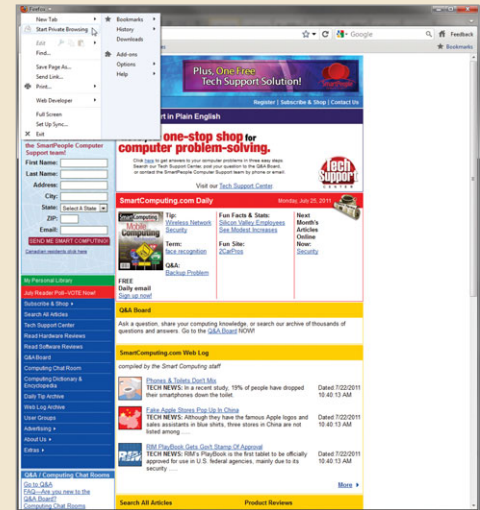
Update Of The Month

Mozilla Firefox 5

UPDATE: Mozilla Firefox version 5.0 offers a host of changes. Aside from correcting stability and security bugs, Mozilla has added support for CSS Animations as well as the following Web languages: HTML5, XHR, MathML, SMIL, and canvas. As of this update, WebGL content won't load cross-domain textures (3D graphics rendering). The Do Not Track header preference was moved to "increase discoverability," and the spell checker has undergone improvements. Firefox users can also expect better JavaScript, memory, and networking functionality.

INSTALLATION: The Firefox 5.0 update is available for download at www.mozilla.com. Click the Firefox Free Download button. When the EXE file appears in your browser, click Save. From here, continue following the instructions to finish the download. Firefox may inform you that it needs to restart the browser to finish installing the update.

Alternatively, you can access the update at tinyurl.com/y4ynle. Here, you can choose from Windows, Mac OS X, and Linux versions. In addition, Mozilla supports more than 70 languages, if you're bi- or multi-linguist. Click the download icon once you've made your selection. The Firefox Setup 5.0.1 EXE file will automatically download. Click through the on-screen instructions to complete the installation process.



Mozilla Firefox 5 updates plenty of behind-the-scenes characteristics in addition to enhancing the browser's overall stability and networking functionality.

Updates). The Apple Software Update box will open and reveal all of the Apple programs that have an update available. Check the box next to items you need to update, including iTunes, and click Install [Number] Items.

Safari 5.1

UPDATE: Safari 5.1 includes new stability, responsiveness, and improvements that affect several features within the browser. You can add content, such as Web pages and links, to your Reading List for future browsing. You will now be able to launch Safari from the General pane (click the Gear icon and select Preferences) and resume your most recent browsing session. A refreshed Privacy pane in Preferences lets you get rid of unwanted data left over from Web sites. With the Private AutoFill feature, you

can quickly complete online forms while protecting your identity. The update also highlights the Find option, the downloads drag-and-drop (to the Desktop) feature, and new API (application program interface) extensions for the benefit of developers. Safari 5.1 supports full-screen pages and introduces new enhancements to Web technologies such as media caching with the HTML5 (Hypertext Markup Language) application cache, Open Font Format, and CSS3 (Cascading Style Sheets) vertical text.

INSTALLATION: The download is located at www.apple.com/safari/download. Select Safari 5.1 For Windows XP, Vista Or 7 (or choose the version that includes the QuickTime update) and then enter your email address in the provided box and click Download Now. When the dialog box appears,

click Save. The download will provide further instructions for the update.

Microsoft Office 2010

UPDATE: Microsoft has released a definition update for Office 2010, 64-bit edition. The update defines new parameters that categorize a message as junk email. This update is also available for the 32-bit edition.

INSTALLATION: To install either the 64-bit or 32-bit edition, go to support.microsoft.com/kb/982726. Click Download The Update Package Now under the appropriate edition. In the page that opens, click the Download button and you will see the EXE file dialog box. Next, you will save the file to your hard drive by clicking Save. Locate the EXE file in Windows Explorer and follow the instructions to complete the installation. ■

Q and A

Need help with your hardware or software? Looking for simple explanations on technical subjects? Send us your questions!

Get straight answers to your technical questions from *Smart Computing*. Send your questions, along with a phone and/or fax number, so we can call you if necessary, to: Smart Computing Q&A, P.O. Box 85380, Lincoln, NE 68501, or email us at q&a@smartcomputing.com. Please include all version numbers for the software about which you're inquiring, operating system information, and any relevant information about your system. (Volume prohibits individual replies.)

Multimedia



Higher-end computers these days have memory card slots that make it easy to preserve and transfer the photos contained therein—even with several of the card formats now obsolete. Is there similar hardware available to preserve and transfer 50- to 60-year-old 35mm slides to the computer with quality results? I assume the photo-editing software presently available could acceptably correct for faded colors. I know there are offsite services available to do this, but for a substantial price.

A Transferring 35mm slides can be well worth the effort because they have excellent image quality. Converting them from film to digital images requires a scanner. Flatbed scanners designed for scanning documents or photographs often have slide holders that will work for both negative film and slide film, and you can usually purchase these for under \$200. For higher-quality transfers, you can also purchase dedicated slide scanners; these have

a higher resolution and better scanning mechanism. They can also scan slides at a faster rate. However, they are more expensive than their flatbed brethren, sometimes as high as \$1,000.

In addition to a scanner, you'll need a photo-editing application to correct any blemishes or flaws in the images. There are many premier programs available for this, but you may be able to utilize a free online photo-editing application that fits your needs (and your budget).

One thing you'll want to budget is your time. Scanning a slide can take several minutes or more at the higher resolutions. Add in the time required to correct any color issues and clean up any blemishes, and you may find that outsourcing the task to a photo-processing company isn't as expensive as doing it yourself. If time is of the essence, be sure to check the location and the terms of any company you consider because some overseas firms may take several weeks to process your slides. ■

Networking



We have a small three-person office. I had hired an IT person to set up our network so that we could share our printer and network connection. We have a simple firewall for our Internet connection, and we're using Windows 7. Our office doesn't require the latest and greatest—just enough to keep our work under control. Last month, one of my partners had his computer infected by a virus. A different IT person came out and cleaned up the mess, and he also had a slew of recommendations for "improving" our network. The estimate was over \$1,000, and he

recommended having someone periodically perform routine maintenance on all the new gear and our PCs. Isn't this a bit of overkill, or is this what's needed?

A If a virus is the only problem you've experienced since your network was set up, expanding everything might be more than is required. A small office doesn't need the same infrastructure as a large business would, though some essentials are common for both environments.

Generally, there are three things that you'll want to take care of regarding your

network: security, backups, and updates. Security is a complex topic, but basically, you want to make sure that no one can get onto your network and access your computers without your permission. As long as your firewall is configured to block all inbound access (from the Internet to your workstations), then you're on the right track. There's far more you can do to protect yourself, but from a network standpoint, a firewall is the first and most important step.

The next step is to make sure you have a backup strategy. It's important to back up any essential documents because computers are fallible machines, and it's not unheard of for a hard drive to fail. Our recommendation is to use one of the myriad online backup sites for keeping a safe copy of any essential files. These sites usually offer 2 to 5GB of free storage. If you're just storing documents, this is quite a bit of space, and as your needs grow, you can purchase additional storage capacity. You can also use a USB thumb drive to make a copy for safekeeping, though this requires you to follow a regular schedule. Thumb drives have become so affordable that the cost shouldn't be a serious impediment.

Finally, you'll want to keep your workstations up-to-date. This means using Windows Update. We'll walk you through setting this up in Win7 to automatically update your workstations as patches are made available by Microsoft. First, click Start and

open the Control Panel. Next, select System And Security and click Windows Update. Select Change Settings from the left side, and under Important Updates, select Install Updates Automatically (Recommended). Mark the checkboxes for the three remaining options (under Recommended Updates, Who Can Install Updates, and Microsoft Update) and then click OK.

This is just a basic overview of what most small offices should use as a minimum baseline strategy for managing their computers. When a vendor or consultant tries to sell you services, make it present a solid business case for the items and services it wants you to undertake. Many support companies like to use a "one-size-fits-all" template so that it's easier for them to manage your network. Just remember what your business requires when you hear a sales pitch for the latest and greatest technology. Simply ask that company to justify any expenditures with concrete examples.

As you become more comfortable learning about your network, you may not need as much help, but it is a good idea to periodically have someone you trust come out and check your infrastructure to make sure that you haven't overlooked a critical area. With resources such as *Smart Computing* and the breadth of information available on the Internet, managing three computers is not something that should require a dedicated support person. ■

This Old Machine



I have a Macintosh SE 30 with files that I need to use. If I could print the files I could scan them to my PC, but I cannot find a printer that will work with the SE 30. At present, I am trying to use another printer with no success. Is there a converter that will change the printer port into a USB? Is there any way that I can convert the SE 30 files so I can open them in Windows XP?

A The Mac SE 30 is a mighty old computer, circa 1990. Your best odds of getting your

files off of it in usable form would be using a Zip drive. You'll need two actually: one with an SCSI (Small Computer System Interface) adapter and one with a USB connector. Connect the SCSI Zip drive to your Mac and copy the files to a Zip disk. Then connect the USB Zip drive to your other computer and transfer the files from the Zip disk you made in the previous step.

If you want to try to print and then scan the pages, you might be able to find an old Laser-Writer or Image Writer online. ■

Tech Talk

Answers to users' most common questions about **Monitors**

A monitor's resolution (known as its "native resolution") is the default setting that affects detail in images that appear on the monitor.

Q What are the most essential specs to consider in a new computer monitor?

To boil your decision down to the critical elements, pay attention to a monitor's resolution, screen size, and ergonomics, and you should wind up with the right choice. Darryl Valdes, worldwide product marketing manager with HP's displays business unit, says, "To me, screen size is a very large consideration, [and] probably how I would start my buying decision. I'd get the most screen I could get in terms of pixels."

Q How does the monitor's resolution affect me?

A monitor's resolution (known as its "native resolution") is the default setting that affects detail in images that appear on the monitor.

You can't use a resolution higher than the monitor's maximum native resolution, and setting the display to a lower resolution can produce graphics and text that look strange in various ways, including stretched or centered on the screen in a black frame. For 17- to 19-inch displays, expect to find resolutions around 1,280 x 1,024. For larger units, you can expect a resolution of 1,920 x 1,080.

Q Should I care about response rate?

This spec, which measures how quickly a display's pixels change colors, matters most to users dealing with fast-changing graphics, such as those in action movies, action games, or televised



The growing category of LED monitors, including this 23-inch HP 2311x (\$189.99 with instant rebate; www.hp.com), offers thinner form factors and lower energy usage.

sports. The lower (faster) the response rate, the better, but response rate is unlikely to be a driving factor for most small businesses. Most displays feature a 5ms (milliseconds) response rate, which is plenty fast.

Q One of the stranger items listed on a monitor's spec sheet has to be brightness, which I've seen measured in units of "nits" and "cd/m²." Do I need to worry about this?

Typically, no. Consider this: How often have you adjusted the brightness on your current display? And even if you've adjusted it, how often have you actually turned it up to its maximum setting? Probably never; so a

display's maximum brightness is unlikely to come into play very often unless you work in an office washed in natural sunlight.

Q What is the viewing angle?

This spec refers to how visible the screen is to users sitting anywhere other than directly in front of the display's center. Because that's where most of us sit when using a display, the viewing angle, which is measured in degrees typically from 160 to 180, isn't a dominant issue. However, if you frequently have other people looking at your screen (maybe you often turn your screen to show customers something such as a project bid), the viewing angle could become important.

Q How can I ensure I buy the perfect monitor the first time?

You'll almost inevitably have some trial and error with a device this important to your daily work. For starters, keep in mind that buying a display strictly from information on a Web site is about as reliable as buying gourmet food online: There's no way to truly judge the quality without trying out the product firsthand.

Shopping for displays in stores can produce plenty of doubt in its own right. When you stare at a demo display on a shelf, you're typically dealing with lighting conditions that differ from your office, display settings tweaked to show off the monitor in a non-typical way (such as brightness cranked up to an unrealistic level), and a display connected to a video source of unknown quality. The most reliable way to get the right monitor is to make the best choice possible after checking all the specs and then trying out the monitor in person. Be sure to find out in advance what kind of return policy you're working with (pay attention to shipping charges and the ever-popular "restocking fees"). Look for

a store or other vendor that will let you try the display out in your office for a few days and return it for another option if the display doesn't suit your needs. If you're struggling to find such a lenient vendor, make good use of all the online reviews from your fellow consumers before you buy.

Q If I replace my 21-inch CRT (cathode-ray tube) with a 21-inch LCD, how will the viewable area compare?

If you shopped for monitors much in the past, you've probably been trained to subconsciously subtract a couple of inches off the stated size of any CRT, knowing that it's not all viewable. LCDs, on the other hand, generally feature viewable areas that match their stated dimensions.

Q What are LED (light-emitting diode) displays all about?

These units use a different kind of backlighting technology (LED

instead of CCFL [cold cathode fluorescent lamp]), which is generally considered to provide superior image quality while using less power. LCDs still dominate the market, though, and there's a range of quality even among different types of LED backlights. Don't worry that you're getting a substandard unit if you decide to save a little cash by skipping the LED unit.

Q I'm looking at two monitors that appear to have basically the same specs, yet one is significantly more expensive. What's the difference?

Specs don't always reflect the quality of the components in the display. More expensive monitors typically use better parts, producing a sharper, more responsive image that ultimately is not only more pleasing to look at but also easier on your eyes day in and day out. Paying more also probably buys you a better warranty, because the unit

If you work with a lot of audio but have limited desktop space, consider a monitor with built-in speakers, such as Samsung's 23-inch B2330HD model (\$279.99; www.samsung.com).





Many users get so caught up in technical specs that they overlook critical ergonomic factors in a monitor. Fully adjustable units, such as the HP Compaq LA2306x (\$209), provide a range of positions so you can find what is most comfortable for you.

is likely to be more durable. Be sure to check the paperwork.

Q What do I need to know about the connections on a monitor?

The standard connections on most of today's displays are VGA (Video Graphics Array; an analog connection) and DVI (Digital Visual Interface). You'll also find monitors with an HDMI (High-Definition Multimedia Interface) connection, which is used to connect monitors to a high-def source for viewing movies or video games. HDMI is becoming a standard connection on newer monitors, but if you don't plan to use an office monitor for these applications, you can get by without it. The latest flavor in connections is DisplayPort, which is found on some monitors today and is planned to replace VGA and DVI in the next few years. It promises high-quality video delivery through a connector more like a USB cable than a bulky VGA screw-in connector.

Q When purchasing a monitor, what are some of the less techie aspects worth extra attention?

Physical adjustments have no bigger role in computing than when it comes to the display. A poor display setup is a prime ergonomic offender, producing problems for your eyes, neck, back, and more. Some less expensive displays have limited adjustments, often letting you change no more than the tilt and swivel. When you're going to be spending most of your working hours looking at a screen, it's worth shopping for a display that includes options such as height adjustment. Some displays slide side-to-side, which is more convenient than moving the entire unit laterally. And pivoting monitors can be handy if you work with a lot of long documents that would be easier to review in a vertical orientation. HP's Valdes suggests that most buyers should give more attention to a monitor's ergonomics, and he thinks they soon will.

"We think [ergonomics is] one of the new markets for the American population, and the Baby Boomers in particular. That will be of more and more value in terms of product design," he says. "If I'm going to work on a computer, I'm going to be comfortable as much as I can. That's probably the biggest message I would say to someone who's using it for productivity."

During your purchase decision, a selection of ports on the front or sides of the display may seem like a minor cherry on top. But if you regularly connect flash drives, digital cameras, iPods, or other audio/visual equipment to a computer (and who doesn't?), then you'll probably regret passing up the chance to buy a display that makes all those connections available from your regular working position. It doesn't take long to recognize the appeal of simply extending your arm to connect a cable rather than crawling under the desk to reach the only ports you have.

You'll find some monitors that feature integrated speakers. The sound quality of these units won't rival that of dedicated standalone speakers, but if your audio needs are pretty basic and you don't have a lot of desk space to work with, integrated speakers may suit you.

Q How do I safely get rid of the dinosaur-sized CRT monitors still cluttering up my storage room?

To learn where you can properly recycle old monitors (which contain a variety of materials unsuitable for tossing into the general landfill), look online (here's one site to get you started: e-stewards.org/find-a-recycler) or contact your garbage service or a local computer shop. And be sure to take the right steps if you're disposing of an old LCD, too, because they contain significant amounts of mercury. ■

PestControl

REMOVE STUBBORN BUGS

If a virus slips past your computer's defenses, it's time to roll up your sleeves and go after the bug yourself. Each month, we tell you how to remove some of the most disruptive malware on the Internet.

CLAMPI

DESCRIPTION: Clampi (also known as Ligats and Ilomo) is a particularly nasty Trojan that's used to establish **botnets**: networks of infected computers that can be controlled remotely and used for nefarious purposes. In this case, Clampi is used to steal passwords for online banking and other financially oriented Web sites. Clampi is a clever piece of programming and can insert itself into Internet Explorer as a way to avoid local firewalls. It also does its job anonymously, protecting itself from many online banking security measures. Although it's been around for several years, Clampi is still on the move and still infecting all versions of Windows since Windows 95.

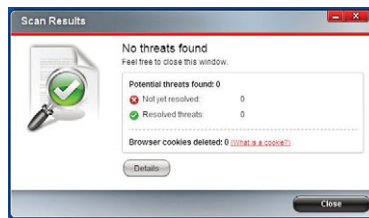
Trend Micro Titanium Maximum Security 2011 (\$79.95 for one year; www.trendmicro.com) can remove Clampi quickly and easily. We'll walk you through the process of scanning for and removing Clampi and other Trojans. (The folks at Trend Micro have published an extensive study of Clampi, which is available at tinyurl.com/4x5w6nb.)

How To Tell If Clampi Is Installed On Your System

Clampi works behind the scenes and very surreptitiously. Without examining the Windows Registry (which would show suspicious Registry keys in HKCU\SOFTWARE\MICROSOFT\INTERNET EXPLORER\Settings), about the only way a typical user would notice a Clampi infection would be if the system started behaving oddly and sluggishly. You might also run across a file called PSExec.exe, which is a small utility that can be used to allow (often legitimate) remote access. (Note that PSExec.exe is itself *not* malware; it's used by many legitimate applications, but it can also be misused by malware authors.)



During a scan, if you click the Check On The Scan In Progress option, the system will display the name of the file currently being scanned, as well as the number of discovered threats.



At the conclusion of the scan, Trend Micro Titanium Maximum Security will display the number of resolved and unresolved threats discovered.

How To Remove Clampi

You can download Trend Micro Titanium Maximum Security from the Trend Micro Web site. Installation is straightforward, the only potential complication being that the installer may request that you remove (or allow it to remove) other anti-malware apps to avoid any possible conflicts. You can always reinstall those later, of course.

Once installed, removing the Clampi Trojan simply involves running a full scan by clicking the Scan button's small down arrow and selecting Full Scan. (The Quick Scan option may not find all threats.) The scan will take several minutes—perhaps as long as an hour, depending on the number and size of the hard drives and other media being scanned.

While scanning, the Trend Micro Titanium Maximum Security main window will display the scan's completion percentage and also the number of threats discovered, if any. If you'd like to know more about the scan as it's taking place, click the Check On The

Scan In Progress option on the main window; a second window will open, in which will be displayed the name of the file currently being scanned and the total number of files scanned so far. At any point, you can pause (and then resume) the scan or stop it altogether.

If the software finds any threats, it will usually clean or remove them without any action on your part. If there are unresolved threats—perhaps because a system restart is required in order to finish removing portions of the threat or because the program did not have full read/write access to the suspicious file—you may have to manually OK removal or restart your computer. Either way, your system should now be free of Clampi and any other threats. ■

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